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Serapelo, Thuto

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MACHINE LEARNING APPLIED TO COMPUTATIONAL CREATIVITY: THE USE OF ARTIFICIAL INTELLIGENCE IN AUTHORING FILM SCREENPLAYS.

by

Thuto Serapelo

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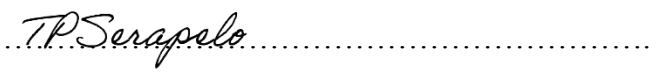
A Research Report submitted in fulfilment of the requirement for the Degree of Master of Arts in Digital Arts at the University of the Witwatersrand Johannesburg, South Africa

Date: 15 March 2023

Supervisor: Raymond Whitcher

Declaration

I declare that this research report is my own unaided work. It is being submitted to the Degree of Master of Arts in Digital Arts to the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination to any other University.



Thuto Serapelo

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I complete the acknowledgements section with a quote by Elon Musk describing Artificial Intelligence as well as giving a warning about all its power and potential dangers in an interview he did with Kara Swisher for Recode: "As AI [Artificial Intelligence] gets probably much smarter than humans the relative intelligence ratio is probably similar to that between a person and a cat, maybe bigger. I do think we need to be very careful about the advancement of AI." - (Elon Musk: *Recode Interview*, 2018)

Abstract

Artificial Intelligence, from the inception of the field in the 1950s, supported the notion of having computer software or programs that are capable of exhibiting creativity or applications that can execute tasks that are deemed to be creative.

This research addresses the question: To what extent can Artificial Intelligence exhibit creativity in authoring film screenplays, as evaluated through a comparative analysis using the 90-point screenplay guideline? - This study delves into the nuances of film structure, plot, dialogue, character, emotion and narratology.

The results revealed that although Artificial Intelligence is on par with human creativity when analysing some aspects of narratives/screenplays. It still lags in the other elements examined, and where AI produced superior work is when it worked in collaboration with a human screenwriter and did far worse when working entirely alone and unaided. This research offers insights into the broader implications of AI in the creative arts, indicating a promising yet complex future.

Keywords: Artificial intelligence (AI), Computational Creativity, Machine Learning (ML), Natural Language Processing (NLP), Automatic Text Generation.

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Introduction

Artificial Intelligence experts Russel and Norvig write that “AI from the start embraced the idea of duplicating human faculties such as creativity, self-improvement, and language use” (2016, p. 18), while cognitive science research professor Margret Boden asserts that “creativity is a fundamental feature of human intelligence, and a challenge for AI”(2016, p. 347).

Cinema, a realm long governed by human imagination, stands at the crossroads of a technological revolution with the advent of Artificial Intelligence (AI) and machine learning. While machines' ability to perform tasks has been well-documented, their potential to be 'creative', especially in crafting cinematic narratives, remains an enigma. This research embarks on a journey to understand AI's capabilities in film, guided by the central question: "To what extent can Artificial Intelligence exhibit creativity in authoring film screenplays?" Through a deep dive into film structure, narratology, and a comparative analysis using the 90-point screenplay guideline, this study seeks to unravel the mystery of machine creativity in the realm of cinema or, more explicitly, screenwriting.

Computational creativity (CC for short) is defined by Besold et al. in their article titled *Computational Creativity Research: Towards Creative Machines* as “the use of computers to generate results that would be regarded as creative if produced by humans alone. This includes not only art but also innovative scientific theories, mathematical concepts, and engineering designs” (2015, p. 5), but the term is often used to refer to results of an artistic nature, the authors note. Specifically, this paper will look at machine learning (ML), natural language processing (NLP)/Natural language Generation(NLG), and/or text generation models with a focus on story generation, to write a film screenplay but the methods and

techniques analysed have been applied to other forms of creative writing as well, such as poetry, short stories and video game narratives (Liapis, Yannakakis and Togelius, 2014). Specifically, this paper will look at machine learning (ML), natural language processing (NLP)/Natural language Generation(NLG), or text generation models with a focus on story generation to write a film screenplay, but the methods and techniques analysed have been applied to other forms of creative writing as well, such as poetry, short stories and video game narratives (Liapis, Yannakakis and Togelius, 2014).

As stated previously, making any art is, most scholars agree, the epitome of creativity, at least regarding computational creativity, as Barreto et al. note that it is primarily artistic areas that computational creativity researchers focus on (2014).

Boden defines creativity as "the ability to come up with ideas or artefacts that are new, surprising and valuable" (2004, p. 1). She explains in the book The Creative Mind: Myths and Mechanisms that ideas may include items such as concepts, poems, musical compositions, scientific theories, etc. while artefacts include things such as; paintings, sculptures, steam engines, – and numerous other things we can name (Boden, 2004), such as screenplays.

Downs and Russin, in their book Screenplay writing the picture describe screenwriting as a unique kind of story-telling device, a craft as well as an art (2012). So for this research, creativity will be measured by the ability of a computer/AI program to generate a story/write a coherent film screenplay that adheres to the 9*0-point guideline for writing and analysing screenplays*.

There have been several screenplays/films written using artificial intelligence and machine learning techniques, the most popular being Oscar Sharp's 2016 short science fiction film; *Sunspring* (2016), one of this research's case studies. *Sunspring* was written entirely by an AI Bot, which named itself Benjamin (Kurt, 2018).

Ross Goodwin, an AI researcher at New York University built Benjamin which used long-short-term memory (LSTM) Recurrent neural networks, and trained on a corpus of science fiction films to write the *Sunspring* screenplay (Kurt, 2018).

A Recurrent Neural Network (RNN) according to Harrison et al. can be trained on a large dataset of natural language stories to derive "the probability of a character, word, or sentence given one or prior characters, words, or sentences" (2017, p. 1), because of this unique feature, many researchers in the artificial intelligence and computational creativity field have proposed that RNNs be used for automated story generation as they are best suited for the task.

Benjamin, the AI created by Goodwin wrote the entire screenplay of the short film Sunspring amongst other films after being trained with hundreds of different science-fiction screenplays in its neural network, after the script was written, the film was directed by Oscar Sharp and was entered at the Sci-Fi London Film Festival 2016 where it ranked in the top ten out of hundreds of other films (Kurt, 2018).

An advancement in computational creativity and specifically natural language processing, text, and/or story generation would bring about enormous advantages to numerous other fields as well, as noted by McIntyre who, citing computer games as an example describes how modern ones are becoming "more immersive, containing multiple story lines and hundreds of characters" (2011, p. 3) this he argues has increased the amount of work required to make each

game, but using computational creativity and story generation techniques, developers can permit the game to create its storyline, and still be immersive to the players while eliminating the burden of writing for the game's developers.

The principle and consequently positive benefits of human-machine collaboration in creative endeavours is emphasised by Bringsjord and Ferrucci in their book Artificial Intelligence and Literary Creativity who note that computers capable of working with people in areas requiring creativity would have incalculable worth and that a "machine able to write a full formidable novel, or compose a feature-length film, or create and manage the unfolding story in an online game, would be, pure gold" (2000, p. xxvi) this preceding quote illustrates how valuable and significant research on computational creativity and/ story generation is and will continue to be in the future, this is emphasised by Besold et al. writing that, much of the existing work in AI would become more relevant, once researchers start thinking seriously about creativity (2015).

In her 1998 paper Creativity and Artificial Intelligence Boden claimed that there are different types of creativity, involving numerous ways of producing new ideas and that there is no reason why future Artificial Intelligence systems should not be able to be creative in the traditional sense of generating novel ideas (1998), while Bringsjord and Ferrucci in their book Artificial Intelligence and Literary creativity wrote that in the future there will be AIs which seem, at least on behavioural grounds, to be creative and that they envision a time when creative writers will stand to such AI systems and stories as mathematicians stand today to theorem-provers (2000). This paper seeks to investigate if the future that they predicted more than 20 years ago has yet to arrive today.

Chapter 1: Artificial Intelligence (AI), Computational Creativity (CC) and Machine Learning (ML) an Overview.

1.1 Introduction to Artificial Intelligence

AI is a relatively new field in the studies of science and engineering; according to Russel and Norvig, AI work began briefly after World War II, and the term artificial intelligence was coined in 1956. The field of artificial intelligence, or AI, tries not just to comprehend but again to build intelligent machines (Russell and Norvig, 2016).

Computer scientist and founding researcher of the field of AI, John Nilsson lists what he refers to as the "major areas of application" of AI in his book; *Principles of Artificial Intelligence* (1982, p. 1), according to Nilsson these include: "natural language processing, automatic programming, robotics, machine vision, automatic theorem proving, intelligent data retrieval systems, etc." (1982, p. xi), these mentioned areas are described briefly below:

- **Natural language processing:** The goal of natural language processing is to develop computer systems that can generate and understand "even fragments of a natural language" such as English (Nilsson, 1982, p. 1).
- **Automatic programming**: The area of Automatic programming is related to theorem proving and robotics according to Nilsson, he describes it as consisting of systems that would have as their input a very complex explanation of what the system needs to achieve and thereafter produce a computer program to tackle the defined task (1982).
- **Robotics**: The area of Robotics is focused on solving "the problem of controlling the physical actions of a mobile robot" which Nilsson admits may not appear to involve a lot of intelligence, especially when performed by humans, but when performed by

machines - involves a lot of similar capabilities required when solving more intellectually challenging problems (1982, p. 5).

- **Machine vision:** Machine vision or more broadly what is commonly referred to as "perception problems" involves efforts to make computer systems fitted with sensors and detectors that can "see" or with regards to audio signals, "hear" their surroundings (Nilsson, 1982, p. 7).
- **Automatic theorem proving:** Automatic theorem proving refers to the development of AI programs that can find proofs (or disproof) for inferred theorems in the field of mathematics a feat which Nilsson says can "certainly be regarded as an intellectual task" (1982, p. 4).
- **Intelligent data retrieval systems:** Database systems are digital systems that store a large amount of data about a particular subject to answer a user's queries about that subject, Intelligent data retrieval systems refer to database systems that would be able to answer queries that require "deductive reasoning" as Nilsson puts it (1982, p. 3)

This list of areas above is by no means exhaustive, as the field of AI consists of a huge variation of subfields, extending from the wide-ranging (perception and learning) to the more specific, such as playing computer games, solving mathematical problems, writing literature, driving vehicles on complex roads, and diagnosing medical conditions (Russel and Norvig, p. 5).

In a 2005 paper comparing AI in works of fiction such as films and in the real-world, Asaro wrote that "The most obvious fictions of AI research in the past were the exaggerated claims of what machines would be able to do in just a 'few short years.' hardly have these predictions been met in the amount of years predicted" (2005, p.18) he notes, then goes on to make a claim that challenges with AI happen to be a lot more complex than researchers predicted and that the systems are more limited than previously thought, he writes that

“despite the exponential growth in computing power, the data processing requirements [are] still too great” (2005, p.18), that may have been the case in 2005 when Asaro’s paper was published but as Moore’s law (which states that processor speeds, and overall processing power for computers doubles every two years) has continued, we now have integrated circuits more than capable of meeting the data processing requirements, and with the rise of the consumer internet and the advent of smartphones we have seen huge increases in the amount of data available - the resource that fuels today’s AI Systems.

AI is often mentioned as the field of research most likely desired by researchers in other disciplines to be part of, this is best illustrated by a quote from AI pioneers Russel and Norvig who write that “a student in physics might reasonably feel that all the good ideas have already been taken by Galileo, Newton, Einstein, and the rest” (Russell and Norvig, 2016, p.1), AI, on the other hand, they believe still has openings for a few full-time Einsteins and Edisons, this view demonstrates how much unexplored the potential for advancement and breakthroughs are still there in the field of AI.

1.1.1 A Brief History of A.I.

Kasabov makes an argument that AI has an extensive history of development and that we wouldn’t be able to fully comprehend or develop it further if we don’t appreciate and embrace its rich traditional methods that were advanced during this long period of time, he makes the case that a lot of these traditional methods being utilised in the present development of AI will be employed again, though not in the same way - in the future developments of the field (Kasabov, 2019).

In their seminal book *Artificial Intelligence A Modern approach*, Russel and Norvig outline the history of AI, starting in 1943 they write that the initial work that is today seen as AI was done by Warren McCulloch and Walter Pitts, who got inspiration from three sources:

“knowledge of the basic physiology and function of neurons in the brain; a formal analysis of propositional logic; and Turing’s theory of computation” (Russell and Norvig, 2016, p.16).

Then in 1950, Marvin Minsky and Dean Edmonds then undergraduates at Harvard built the first neural network computer, called The SNARC (16). That same year Alan Turing published his influential article titled *Computing Machinery and Intelligence*, where he established the Turing Test, machine learning, and reinforcement learning (Turing, 1950).

In 1956 a two-month workshop was organized at Dartmouth College which became the official birthplace of the field of AI, researchers studying “automata theory, neural nets, and the study of intelligence” assembled there, and the first official usage of the term artificial intelligence, came from the workshop’s proposal (Russel and Norvig, 2016, p.17), in the book *Computational Creativity research: Towards creative machines,* Besold et al. note that “creativity” was identified as one of the main goals in the above-mentioned proposal drafted by John McCarthy (Besold, Schorlemmer and Smaill, 2015, p. viii), who would go on to define the high-level programming language Lisp, which became the main AI programming language for the next 30 years (Russel and Norvig, 2016, p.19).

The early years of AI between 1952 and 1969 had a few although minor breakthroughs, because of the then primitive computers and programming tools, also because years earlier computers were viewed as instruments that could only do arithmetic, it was considered a breakthrough every time a computer did something that resembled intelligence (Russel and Norvig, 2016, p. 21).

Between 1966 and the 1970s interest and funding for AI research began to decrease, as predictions made earlier by AI Researchers failed to materialize, but in the following decades from 1980 to the present, AI became an industry as more and more commercial enterprises gained interest in the field starting with the first successful commercial AI system called R1,

which began operation at the Digital Equipment Corporation (Russel and Norvig, 2016, p. 22).

The AI industry grew from millions of dollars to billions of dollars in 1980, but following this period, came one known as “AI winter” as companies failed to deliver on their promises and went out of business (Russel and Norvig, 2016, p. 24).

After the AI winter leading up to today, we have seen the return of neural networks, and the adoption of scientific methods in the AI field, as described by Russel and Norvig it is more common today to build on existing theories than to come up with new ones, to base claims on real experimental evidence rather than on intuition, and to indicate significance to real-world applications rather than toy examples (Russel and Norvig, 2016).

As AI research has progressed Besold et al. note that creative thinking was a key research focus of professional AI from the beginning, but there was more emphasis on the “thinking” than on the “creative” and very few of the early AI practitioners worked on what is generally thought of as creativity (2015).

1.2 Computational Creativity

In an article titled *Data mining and machine learning in computational creativity*, scholars Toinovan and Gross write that: “while artificial intelligence has experienced remarkable advances in the last decades and has reached maturity as a research field, its sibling, computational creativity, is in earlier phases of its development” (2015, p. 265).

Colton and Wiggins claim that for a long period in the history of artificial intelligence research, creativity was not categorically considered part of the field, so much so that when researcher Margaret Boden included a section about creativity in her book *Artificial Intelligence and Natural Man*, some practitioners argued that it was inappropriate (2012).

Gustavi and Jändel in a report titled *Computational Creativity: Novel Technologies for Creative Decision Making* suggest that because creativity is an aspect of intelligence, computational creativity is therefore a branch of Artificial Intelligence (2013). The emerging science of computational creativity they define as being concerned with answering the following question; "Can artificial intelligence contribute creative ideas?" (Gustavi and Jändel, 2013, p.8).

In the same report cited above the authors acknowledge that creativity is a hard aspect to define and that there is no commonly agreed, specific, and measurable definition of creativity so for their research they adopted the following loose and operational definition of creativity: "The ability to generate novel and valuable ideas, concepts and artefacts where novelty and value is adjudicated by some receiving human or group of humans" (Gustavi and Jändel, 2013, p.21), while in her book *The Creative Mind, Myths and Mechanism* Boden describes creativity as "The ability to come up with ideas or artefacts that are new, surprising and valuable" (Boden and Boden, 2004, p.2).

When evaluating creativity Boden states that instead of asking if an idea is creative or not, we should instead ask just how creative something is, and in which way or ways is it creative (2004). She makes a distinction between 'psychological' creativity and 'historical' creativity (P-creativity and H-creativity, for short). P–creativity she writes consists of coming up with a surprising, valuable idea that's new to the person who comes up with it, even if other people have had the same idea before and H–creativity, she explains is coming up with an idea for the first time, that no one else has had before (Boden, 2016)

Bringsjord and Selmer in their book *Artificial Intelligence and Literary Creativity* make the claim that Computers, have no trouble with P-creativity, while H-creativity is usually more difficult for them. The authors agree that it's increasingly hard to imagine how for instance a

computer could “autonomously discover a new class of numbers through new proof techniques” an example of H-Creativity, they go on to characterise Psychological creativity and Historical creativity in their terminology: Weak creativity relating to the former, and Strong creativity relating to the latter. They conclude that Brutus an artificial author, or story generation AI system built by the two has weak rather than strong creativity (Bringsjord and Ferrucci, 2000, p. xxv).

Thinking concerning computational systems displaying creativity has been explored from the very initial days of computer science, and the study of computational creativity research was started “in the last dozen years to scientifically explore the potential of such systems” (Colton and Wiggins, 2012, p.21)

In the early years following this interest in computational creative systems, there only existed a handful of successful efforts to build creative systems, however as stated by Colton and Wiggins in their article; *Computational Creativity: The Final Frontier?* Most of these breakthroughs were not always reported in AI outlets. Some examples of these early systems and their artefacts include paintings by artist Harold Cohen which were created by his robot called AARON, these artworks according to Colton and Wiggins were exhibited and sold in art circles (2012, p. 21), another example is CHORAL a program that could create “chorale harmonisations that are unfailingly distinguishable from those of J. S. Bach only by experts” (Colton and Wiggins, 2012, p. 22).

These above-mentioned early attempts at creating creative computer programs were isolated and did not have any unifying theory and methodology (Colton and Wiggins. 2012, p. 22), this statement is emphasised by Toinavan and Gross, who write that the idea of creative machines is an old one but ”only recently computational creativity has established itself as a research field with its own identity and research agenda” (2015, p. 265).

Scholars Colton and Wiggins argue that Creative behaviour in people derives from an entire set of intelligent capabilities and so simulating such behaviour epitomizes a grave technical challenge for Artificial Intelligence research as such, the pair believe it is fitting to characterise Computational Creativity as “a frontier for AI research beyond all others” (2012, p. 21) they argue that Computational creativity may even be AI’s final frontier.

1.3 Machine Learning

In the preface of their textbook *Machine Learning: A Guide to Current Research*, computer scientist and Professor Tom Mitchell et al. wrote that from the start of the computer revolution, people have asked if they might be programmed to learn the way people do. If we could find out how to make computers learn to improve “automatically with experience, the impact would be dramatic” (1986, p. xv), this phenomenon is referred to as Machine Learning.

According to Mitchell et al. Machine Learning (ML) is a sub-field of AI that is focused on how to create computer programs that automatically get better with experience or as they learn more, while Mohri, Rostamizadeh, and Talwalkar in their textbook *Foundations of machine learning* state that “Machine learning can be broadly defined as computational methods using experience to improve performance or to make accurate predictions” (2018, p. 1), in the latter definition of Mohri et al. experience denotes the past material presented to the Machine Learning model, which is usually in the form of digital data, most AI researchers agree that the size and quality of this data are critical to the success of the ML Model. In the past few years a lot of successful machine-learning programs have been designed, a few examples include; “data-mining programs that learn to detect fraudulent credit card transactions, information-filtering systems that learn users' reading preferences, and

autonomous vehicles that learn to drive on public highways." (Mitchell, Carbonell and Michalski, 1986, p. xv).

When comparing traditional computer programming with Machine Learning, Amaisen notes that with the former, a computer programmer has to write step-by-step commands - describing how a specific task should be tackled, this stands in stark contrast to machine learning which as he describes, allows computers to learn from data and perform in a probabilistic way to tackle problems by optimizing for a specified objective (2020).

A key advantage of using machine learning then is that it allows for the automation of tasks that would otherwise require significant human effort and time. For example, in the field of image recognition, a machine learning model can be trained on a large dataset of labelled images, and then be able to classify new images with high accuracy without the need for a human to manually label each image. This not only saves time but also reduces the risk of human error.

Machine learning algorithms can often outperform traditional computer programming approaches in terms of accuracy and efficiency. For instance, in natural language processing tasks such as language translation, machine learning algorithms have been shown to outperform rule-based systems (Sutskever et al., 2014). This is because machine learning algorithms can learn and adapt from the data they are trained on, allowing them to handle more complex and nuanced tasks.

Since Machine Learning models can solve problems without humans needing to provide the systems with step-by-step instructions, this means that they can tackle some tasks better than human experts, real-world examples of this include things such as; detecting cancers from

radiology images and playing the complex ancient Asian strategy board game of Go, the last example many observers have remarked is also a feat of tremendous creativity – these ML systems again perform better at some tasks that are completely out of reach to humans such as recommending content e.g. articles to read from pools of millions or altering the original voice in an audio signal to sound like someone completely different (Ameisen, 2020).

In its 2015 July issue, one of the most esteemed scientific journals; Science, published a special segment on Artificial Intelligence, Amaisen highlights that even though the title proclaims an emphasis on AI, "the dominant theme is machine Learning" this he makes the point; signifies that "machine learning is now the driving force in artificial intelligence" (2020, p. xiii).

According to Alpaydin, in the past - researchers held a belief that to make artificial intelligence a reality, a new paradigm was needed or a new way of thinking or different systems of computation or a set of algorithms that was entirely brand new, but after observing the current achievements in machine learning in countless fields, it is now clear that what we need is not a new set of sophisticated algorithms but "a lot of example data and sufficient computing power to run the learning methods on that much data" (2016, p. xii).

Smola and Vishwanathan emphasise the point made by Alpaydin and postulate that as we get access to more data it is very likely that machine learning will become even more commonplace, make huge contributions, and drive technological progress across all fields and industries including those generally thought of as requiring human creativity (2008).

Artificial Intelligence and Machine Learning pioneer Nilsson has described in his classical and seminal book *Principles of artificial intelligence* a few ways in which machine learning

is important, mainly that; a lot of tasks cannot be executed well by computers except by example, and since fundamentally machine learning models learn by examples, these systems are exponentially better at most tasks compared to their non-ML applications counterparts, the author also posits that it is very likely that inside a lot of today's large data are significant patterns and insights which can only be practically analysed and therefore valuably used by machine learning models (Nilsson, 1982).

Another important factor of machine learning has to do with the human engineers and designers of digital systems who often create machines that do not work as efficient as wanted in the spaces in which they are used, Nilsson argues that Machine learning models can be used to improve these current machine designs, and lastly because the amount of information available about certain occurrences might be too vast for humans to fully understand, machines that can learn this information might be able to retain and use more of it than humans are capable of (1982) - This last point illustrates why and how machine learning can be of great value when applied to creative undertakings; In screenplay writing for example, writers must often seek inspiration from previous work in order for them to generate new and creative ideas, while it may be overwhelming for humans to process and understand all the information available about a particular topic, machine learning models because of their ability to learn from vast amounts of data, can absorb and retain more of this information, potentially making them more efficient at tasks such as screenplay writing. For example, a machine learning model trained on every script that has ever been written would theoretically be able to generate new and creative ideas based on this extensive knowledge base. This flexibility and ability to learn from data makes machine learning particularly useful in creative fields where new and innovative ideas are constantly sought.

A machine learning model that can learn to write screenplays from every script that's ever been written would theoretically be as capable or way better at the task than any human. Machine Learning has several different learning scenarios or techniques, some of the most common are discussed by Mohri et al. in the second edition of their textbook; *Foundations of Machine Learning,* and they include:

- **Supervised learning** where the machine learning model has a set of labelled examples as training data and makes predictions for the other unnoticed themes.
- **Unsupervised learning** where the machine learning model wholly obtains unlabelled training data and makes predictions for all unseen themes, because overall there is no labelled example existing in this set, Mohri et al. note that this leads to challenges when having to quantitatively assess the performance of the model.
- **Semi-supervised learning** where the machine learning model has training data comprising of both unlabelled as well as labelled data and makes predictions for all unobserved points. Semi-supervised learning is usually utilised when unlabelled data is available easily and it's expensive to find labels.
- **Transductive inference**: Just like in a semi-supervised setting, with transductive inference the machine learning model has a labelled training dataset together with a sample of unlabelled test points. But the goal of transductive inference is to predict labels for these specific test points only.
- **On-line learning**: On-line learning differs from the preceding settings in that it consists of numerous rounds where testing and training stages are combined, with every round, the model gets an unlabelled training point, and after making a prediction gets the correct label, and may experience a loss. The goal in the on-line scenario is to lessen the growing loss throughout the rounds.

- **Reinforcement learning**: as with On-line learning, with reinforcement learning the testing and training stages are also combined, to obtain information, the ML model actively engages with the setting and often times also affects the setting and gets an instant reward for every action. The goal of the ML model is to capitalize on this reward throughout the course of these actions and interactions with the environment.
- **Active learning**: In active learning, the ML model flexibly collects training samples, this is done by usually querying an oracle to find labels for new themes. The objective in active learning is to attain a performance similar to the typical supervised learning scenario but with less labelled examples. As with semi-supervised learning, Active learning is usually employed when it's costly to find labels.

Toivonen and Gross claim that machine learning could be used in several ways to assist computers in learning how to be creative, for instance, to learn how to produce original artefacts or to evaluate numerous qualities of newly produced artefacts, with the latter they give an example of how machine learning and other data mining techniques could be used for the automatic analysis of any specific desired genre of music, patterns could then be revealed that may be used to create equally "good imitations of the given music" (2015, p. 265), they do acknowledge however that imitations are not really novel or a form of a creative act.

Jain et al. in their 2017 paper *story generation from sequence of independent short descriptions* note that as of recent there has been many advances in machine learning based methods for natural language generation and specifically story generation, but these existing systems or methods according to the researchers comprise of weak, rather than strong AI systems, and display limited capabilities when natural language or story generation tasks require greater levels of novelty and creativity (2017).

Chapter 2: Natural Language Processing (NLP) - Automatic Text and Story Generation

2.1 Introduction

Automatic generation of data in text presentation is typically advanced using Natural Language Processing (NLP) technologies. NLP merges methods from artificial intelligence such as machine learning and logic, with statistics, procedural programming, or applicated linguistics in order to build systems that are capable of features that require an understanding of human languages like; “automatic translation, narratives generation, knowledge extraction from texts” etc. (Arenas *et al.*, 2017, p. 20).

According to Zhang and Li artificial intelligence has come out as an important pillar for socio-economic development and social progress and as an essential technology, which is propelling the new era of technological revolution – The pair emphasise that a fundamental component of the next generation of AI is Natural Language processing and specifically natural language understanding which is briefly defined in the following paragraph. As the field advances, breakthroughs in its core technology leads to “great scientific significance and industrial value” (2021, p. 831).

Natural Language Processing (NLP) has two main subdomains Arenas et al. explain: “Natural Language Generation (NLG) and Natural Language Understanding (NLU)”. NLG is used in a variety of applications, such as chatbots, automated customer service systems, and machine translation. For example, a chatbot may use NLG to generate responses to user inquiries, while a machine translation system may use NLG to generate translations of text from one language to another. NLG systems are typically trained on large datasets of human language and use algorithms to generate text that is similar to the language in the dataset (Gatt, 2018).

NLU, on the other hand, involves the ability to understand the meaning of natural language input. This includes tasks such as named entity recognition, part-of-speech tagging, and sentiment analysis. NLU systems are used in a variety of applications, including language translation, language modelling, and natural language interfaces for artificial intelligence systems (Jurafsky and Martin, 2019).

Overall, both NLG and NLU are important subdomains of NLP that enable computers to understand and generate human language. NLG is used in applications such as chatbots and machine translation, while NLU is used in tasks such as named entity recognition and sentiment analysis. The development of these technologies is important for enabling computers to communicate with humans more effectively and to improve the usability of artificial intelligence systems.

There are "six 'classical' tasks connected to the process of Natural Language Generation", according to Staykova, and they are as follows: *Content Selection:* It assumes that NLG systems have at disposal a large volume of input information for the NLG process. This task concerns decisions about the information to be mentioned in the text and the information to be skipped.

Document (*or Discourse*) *Structuring:* This task relates to decisions about how the text should be organized and structured on the whole. *Lexicalization*: Is a choice of particular words or phrases which are the most appropriate to convey the specific semantics of information in the given natural language and context. *Aggregation*: Making decisions on how to compose the information in groups of sentences. *Referring Expression Generation*: which is the determination of the properties of a given linguistic element to be used when the element is mentioned again. The task includes the decisions about using pronouns and

anaphors. *Linguistic* (*or Surface*) *Realization*: Mapping the already specified descriptions of sentences to sequences of words that present syntactically, morphologically, and orthographically correct sentences in the corresponding natural language (Staykova, 2014, p. 3).

According to Goldfarb-Tarrant et al., the NLP research community has produced considerable language systems for some generative tasks such as machine translation but has not done much substantial work in creative domains like storytelling (2020, p. 1), while Liu et al. posit that because of its artistic and entertainment merits, automatic story generation "is becoming a new hotspot in the field of natural language generation" (2020, p. 1725).

Martin et al. assert that automatic story generation "has been a research problem of interest since nearly the inception of artificial intelligence" (2017), this sentiment is echoed by Alhussain and Azmi in their article: *Automatic Story Generation: A Survey of Approaches* where the authors indicate how automatic story generation has been a significant theme of research activity for many decades with a number of applications having been created "based on different AI approaches and various psychological theories" (2021, p. 28).

The discipline of automated story generation is defined by Alhussain and Azmi as a "subfield of computational creativity where artificial intelligence and psychology intersect to teach computers how to mimic humans' creativity" (2021, p. 1). As of late, machine learning technologies and principles have been utilised in an effort to understand the patterns from which narratives can be developed as well as to categorise accessible sections of narrative content in a specific repository in order to construct stories (Martin *et al.*, 2017).

From a practical standpoint, the advancement of natural language processing and text/story generation is necessary as Arenas et al. describe in their paper; *Narrative: Text Generation Model from Data*, because of the ever-increasing demand of new content by users, which

they refer to as “information consumers”– the authors predict that ultimately it will be difficult to produce enough information content with ample quality since we are lacking the “human resources to make it possible” (2017, p. 23).

It is then essential to investigate whether it is probable to generate text and other useful information automatically with advanced systems and with superior quality i.e., “showing complete and accurate information, grammatically correct [and] with a proper style” which satisfies consumers' desires about the content they need or want (Arenas et al., 2017, p. 23).

Several actual cases of using automated text generation as a solution to users' information/content demands include instances where for example; users may want digital, high-quality written media or reporting on local/community sports games similar to those from professional or premiere leagues, however producing high-quality reporting to fans on lower league games is not financially feasible as that necessitates hiring specialists to cover games and do the reporting, as such, automated text generation software may then serve as a cheaper alternative to providing fans with information or content that they want regarding community sports games and other local events of interest.

Automated text generation is also of great use pertaining to the requirement of providing accurate and high-quality product information on online/e-commerce stores. Consumers require correct descriptions on every product and in a detailed way when they shop, natural language models can therefore be used to generate information for categorising entirely and precisely all products amidst those that are alike and presenting valuable information to buyers for them to make the right purchase decisions.

The field of computational text generation can again assist with the generation of a lot of narratives with very little effort as expressed by Alhussain and Azmi and may also help with adapting stories for the end users educational and entertainment requirements (2021, p. 1).

A great number of narratives can be generated for instance by using recurrent neural networks trained on considerably focused text data, such as “the body of works from a single, prolific author” (Martin *et al.*, 2017) or as in the instance of this research, a collection of screenplays from a single specific genre.

In addition to the use cases listed above, NLG algorithms can also be used to generate text that reflects the structure and content of a specific story or narrative. One approach to NLG in story generation is the use of templates, which are pre-written structures that can be filled in with specific details to generate a story (McKeown, 1985). For example, a template for a romance story might include a protagonist, a love interest, and a series of events that lead to the development of their relationship. The details of these characters and events can be filled in using structured data, such as a database of character traits and plot points.

Another approach to NLG in story generation includes the use of machine learning algorithms, which can be trained on a dataset of romance novels and/or screenplays enabling the model to generate a new romantic story by predicting the most likely words or phrases to follow a given input. According to Gatt et al., NLG has the potential to revolutionize the field of automatic story generation, as it allows machines to produce high-quality text that is indistinguishable from human-written narratives (2018).

In conclusion, NLG has the potential to revolutionize the field of automatic story generation, as it allows machines to produce high-quality text that is indistinguishable from human-written narratives (Gatt et al., 2018). One approach to using NLG in story generation is to train machine learning algorithms on a dataset of romance novels or screenplays, which enables the model to generate a new romantic story by predicting the most likely words or phrases to follow a given input. However, NLG is not limited to the generation of romantic stories; it can also be applied to other genres and types of narratives.

Additionally, NLG can be used to generate stories in various languages, making it a versatile tool for automatic story generation. Before delving deeper into automatic story generation, it is important to first examine the related field of automatic text generation. By understanding the capabilities and limitations of NLG, we can better understand the potential and limitations of using AI in story generation.

2.1 Automatic Text Generation

There exist various methods for automated text generation or Natural Language Generation (NLG). Klahold and Fathi in their 2020 book *Computer Aided Writing* describe the development of the field and the current state of research which I summarise below.

According to Klahold and Fathi, prototype-centric approaches had before now achieved some measure of recognition in the prevalent technical area “under the term ‘robotic journalism’ [where] providers such as ‘Yseop’ or ‘Narrative Science’ use templates and rule-based procedures to generate text from data” (2020, p. 131).

Sectors that are naturally suited for the template-based approach, like weather predictions, sports reports, or the explanation of data, benefit the most from this system referred to above. Automatic text generation originated with the T9 system “a patented system designed to simplify text input on a mobile phone” (Klahold and Fathi, 2020, p. 132).

The T9 system according to Klahold and Fathi was introduced in the late 90s in Germany with the Nokia mobile phone, as the authors explain; mobile phones back then typically included two function keys as well as ten keys for the numerals "0" through "9". The keys "2" through "9" are each given three to four letters of the alphabet for text input. The matching key must then be pressed a specific number of times depending on the position of the desired letter. In order to assist the user, the T9 system would offer word suggestions during input (Klahold and Fathi, 2020).



Fig. 1. Nokia 3310 mobile phone with the T9 System, British GQ, 2017.

Another early text generation system used what is referred to as a Markov chain, named after Andrei Markov the system uses “a mathematical tool for mapping conditional transitions between states” (Klahold and Fathi, 2020, p. 139).

According to Klahold and Fathi, Recurrent Neural Networks and Long Short-Term Memory systems which form the basis of the case studies for this research are correlated to Markov chains as well. As noted by the authors and as briefly explained in the previous section artificial neural networks are models inspired by biological neural networks, comprising of “nodes (“neurons”) and a series of directed edges (“synapses”) between them” (2020, p. 139).

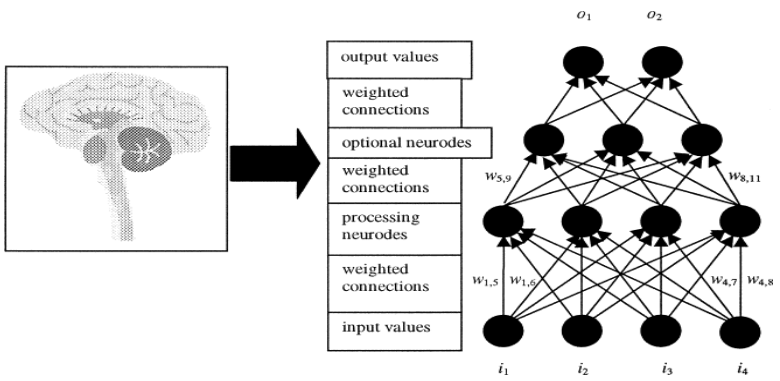


Fig. 2. Artificial neural network architecture*, Encyclopaedia of Physical Science and Technology*, 2003.

Building on the development of artificial neural networks, through the advancement of large-scale natural language models, artificial intelligence has made considerable progress towards greater natural language processing and as a natural extension, text generation technologies. At the time of its release the GPT-3 model, which was built by research company OpenAI, was “the language model with the most parameters, the largest scale, and the strongest capabilities” (Zhang and Li, 2021, p. 831).

Elkins and Chun reaffirm the statement above in their paper titled *Can GPT-3 pass a Writer's Turing test?* writing that before recently, the area of natural language/text generation depended on “formalized grammar systems, small-scale statistical models, and lengthy sets of heuristic rules” - This past technology as the authors note was relatively inadequate and weak, and as of late, very large-scale statistical language models have radically improved the field, with GPT-3 being just a single example of a model which can assume the rules of language without overt programming or rules. Rather “much like a human child, GPT-3 learns language through repeated exposure” although on a much greater scale (Elkins and Chun, 2020, p. 1)

When it was first released the predecessor to GPT-3, the GPT-2 text generator which was considered ‘too dangerous to release’ according to Belz, made a lot of news headlines and garnered a lot of media and public attention, with one specific text about unicorns especially appearing everywhere (2019).

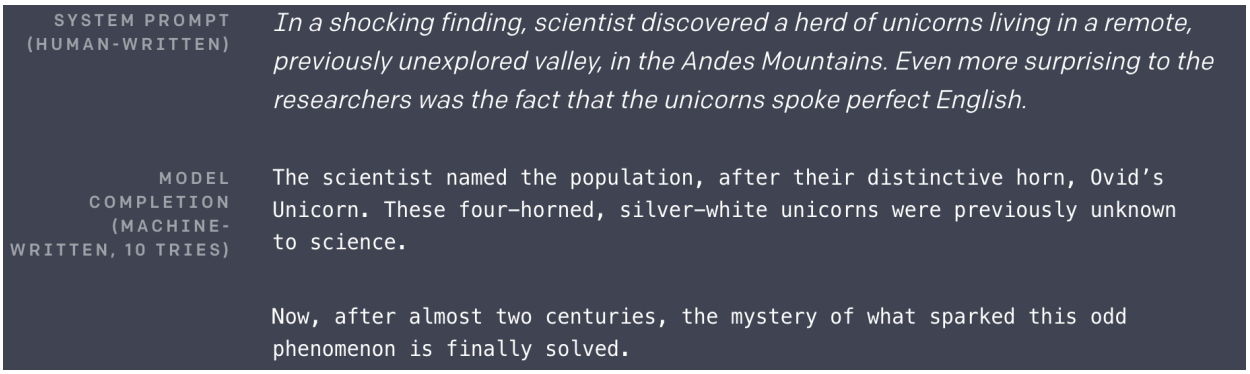


Fig. 3. Automatic text generation by GPT-2, OpenAI, 2019.

GPT-2 was a ground-breaking language model that significantly advanced the field of natural language processing (NLP) and automatic text generation. According to Radford et al. (2019), GPT-2 was trained on a dataset of 8 million web pages, which allowed the model to generate human-like text that was able to complete tasks such as translation, summarization, and question answering with high accuracy.

One of the notable achievements of GPT-2 was its ability to generate coherent and cohesive paragraphs and passages of text, which had previously been a major challenge in NLP. The model was able to do this by using a self-attention mechanism, which allowed it to consider the context of previous words when generating the next word in a sequence (Vaswani et al., 2017). This allowed GPT-2 to generate text that was more contextually appropriate and natural sounding compared to previous models.

GPT-2 received widespread attention and acclaim in the media, with many speculating about the potential uses and implications of such a powerful language model. However, according to Bender et al. there were also concerns about the potential negative impacts of GPT-2, such as the possibility of generating biased or misleading text (2021). In response to these concerns, the OpenAI team released a smaller version of GPT-2, called GPT-2 117M, which had fewer parameters and was less powerful than the original GPT-2 model.

In the years following the release of GPT-2, the OpenAI team continued to improve and advance the model, culminating in the release of GPT-3 in June 2020. GPT-3 was a significant step forward in the field of NLP, with a total of 175 billion parameters, making it the largest language model at the time of its release (Brown et al., 2020) as mentioned previously. GPT-3 was trained on a dataset of billions of web pages, allowing it to generate human-like text that was able to complete a wide range of tasks, including translation, summarization, question answering, and even text-to-speech synthesis.

One of the key features of GPT-3 was its ability to perform zero-shot learning, which allowed it to complete tasks without any explicit training on those tasks (Brown et al., 2020). This was achieved through the use of a hierarchical model structure, which allowed GPT-3 to generalize and adapt to new tasks by leveraging the knowledge it had gained from its previous training. GPT-3 received widespread attention and praise for its impressive performance on a variety of tasks and was seen as a major milestone in the field of NLP.

Building on the success of GPT-3, OpenAI released ChatGPT, a variant of GPT-3 that is specifically designed for conversation (OpenAI, 2022). ChatGPT can generate human-like responses to a given input and can carry on a conversation in a coherent manner.

One of the key advantages of ChatGPT and its predecessor GPT-3 is its ability to adapt to various languages and dialects. For instance, according to Fang, GPT language models have been used in customer service chatbots to provide multilingual support for companies with a global customer base (2021). In addition to customer service, GPT models have also been used in language translation applications, allowing for the automatic translation of text from one language to another (Liu et al., 2021).

In addition to its practical applications, OpenAI's GPT models have also been used as personal assistants, providing users with information and assistance on a variety of topics

(Fang, 2021). This ability to interact with users in a natural way has the potential to revolutionize the field of artificial intelligence and how it is used in daily life including in creative work such as scriptwriting where screenwriters now can collaborate with AI in any number of tasks, including outlining drafts or plots, getting inspiration for characters or even dialogue in a particular style.

As we have seen, the development of large-scale language models such as GPT-3 and ChatGPT has had a significant impact on the field of natural language processing and generation. These technologies have the potential to revolutionize industries such as customer service, language translation, and personal assistance. However, their potential goes beyond these practical applications.

In the field of automatic story generation, these technologies have the potential to significantly impact the way stories are created and consumed as briefly touched upon previously. For instance, with the use of machine learning algorithms, GPT models can potentially be trained on a dataset of screenplays, allowing it to generate new and unique stories that are indistinguishable from those written by humans, potentially leading to a new era of creativity in the field of storytelling.

Overall, the development of large-scale language models such as GPT-3 and ChatGPT has had a significant impact on the field of natural language processing and generation. These technologies have the potential to significantly impact the field of automatic story generation and storytelling in general.

As research in this area continues to advance, it will be interesting to see the full extent of the impact that these technologies will have on our world in the years to come.

2.2 Automatic Story Generation

“Story composition is a challenging problem for machines and even for humans” (Goldfarb-Tarrant *et al.*, 2020, p. 1) and according to Fan, Lewis, and Dauphin storytelling is on the cutting edge of modern text generation technologies (2019).

Thorne has observed how in recent years, the entertainment (Film, TV, and video game) industries have experimented with innovative ways of digital storytelling. The most common model reviving the previously prevalent category of Choose Your Own Adventure (CYOA) novels from the 1980s, which provides readers with a certain influence on the course of the plot or narrative (2020).

Automated story generation however, which specifically utilises Machine Learning “inverts the logic of the CYOA genre by handing over agency to an AI storyteller” and although the two methods for telling stories have the same significance in reinventing narrative practices, individually they have a very dissimilar type of connection to their respective audiences (Thorne, 2020).

Numerous projects have in recent years, achieved limited recognition especially throughout social networking platforms such as Twitter and Facebook where people have posted snippets of stories and other works that were produced by AI/text generation bots - Thorne for example, references a project from 2013 by HackPrinceton called ‘WhatWould I Say?’ where an AI Bot “generates a Facebook post intended to mimic the user by drawing on their existing social media history” (2020, p. 814).

As mentioned previously, automated story generation still proves to be a challenging problem for AI and NLP, and one of the greater challenges lies in representing characters the right way through in a story. For instance, objects such as character names are unique items that are not easy to simulate for NLP models.

Human-written narratives always contain “imaginative, novel character or location names” (Fan, Lewis, and Dauphin, 2019, p.3) and so keeping the constancy of a particular set of characters is challenging because the same character or even location might be referred to by a lot of different names in a story, for example, Thanos, Mad Titan, Sire, he and purple alien from the Marvel cinematic universe of films could all refer to the same being and as Fan et al. note, it is hard for current natural language models particularly smaller scale models to memorise “which words refer to which entity purely using a language modelling objective” (2019, p. 3).

As already mentioned in the introduction of this section, the entertainment industry is innovating with creative functions of Artificial Intelligence and Machine Learning which provide these systems with a greater fundamental role in the content that is consumed by users. Video games for example have applied Artificial Intelligence “to generate unique worlds in *No Man’s Sky* (2016), unexpected challenges in *Spelunky* (2008) and adaptive enemies in *Hello Neighbor* (2017)” (Thorne, 2020, p. 810).

Some examples of automatic story generation applications today include systems in the disciplines of literature and journalism, such as a program from Future University Hakodate in Japan where artificial intelligence was used to generate a short story that was shortlisted for the Hoshi Shinichi Literature Award (Liu *et al.*, 2020).

In the United Kingdom, The Centre for Creative Computing at Bath Spa University built a digital story software system as well as a platform for analysing poems. At Tsinghua University in China, The Centre for Speech and Language Technologies created a bot for automatic poem generation called Weiwei which passed the Turing test according to Liu et al. (2020).

The Chinese technology company Tencent has built a system called Dreamwriter which "successfully generates news scripts automatically and finishes instantaneous output analysis" (Liu *et al.*, 2020, p. 3).

One example of AI being used in the field of creative writing is the OpenAI project DALL-E, which is an AI system that generates images from text descriptions - DALL-E was trained on a dataset of text-image pairs and uses machine learning techniques to generate images that match the descriptions provided (Marcus, Davis and Aaronson, 2022). One potential use case for DALL-E is in the field of visual storytelling, such as comics or graphic novels where it could be used to generate images to illustrate stories or ideas. For example, a writer could use DALL-E to generate images to accompany their writing, or to generate ideas for stories or characters based on visual prompts.

In addition to its potential uses in storytelling, AI could also potentially be used to enhance the creative process itself. For example, AI could be used to help writers generate ideas for stories, characters, or plot points (Klebanov, 2018). This could be particularly useful for writers who are experiencing writer's block or are struggling to come up with fresh ideas. As Klebanov writes, AI could also potentially be used to help writers with tasks such as editing and revising their work, by providing suggestions for improvements or identifying areas where the writing might be improved (2018). This is particularly true today, where a lot of writers have begun using ChatGPT for the tasks mentioned above by Klebanov.

According to Liu et al. to conduct a suitable analysis of the field of automatic story generation, it is important to concentrate not just on film or other literary disciplines but on other specialties as well. Digital games, for example, the authors observe, are an innovative area, in which advanced ways of "generating characters, situations and other elements in a story have been adopted extensively" (2020, p. 4).

One example of the use of AI in digital game story generation is the game "*Detroit: Become Human*" in this game, players are presented with a branching narrative that is influenced by their choices and actions. The game features a system called the "Narrative Designer," which was developed to enable the creation of complex and dynamic stories (Quantic Dream, 2018). The Narrative Designer uses a set of algorithms to generate a tree of possible story branches, which are then refined by the game's writers to create the final story. This approach allows the game to offer a unique experience to each player, as the narrative can change significantly depending on the player's choices.

Another example is the game *The Last of Us Part II* (Naughty Dog, 2020), which uses AI-driven facial animation to create more realistic and expressive characters. The game's AI system was trained on a large dataset of human facial expressions, which allowed it to generate lifelike facial animations for the game's characters. This use of AI in digital game story generation helps to create more immersive and engaging experiences for players.

AI is also being used in the development of virtual reality (VR) experiences. One example is the VR game *A Fisherman's Tale* (InnerspaceVR, 2019), which uses AI to generate dynamic and interactive environments. In the game, players can manipulate the world around them using VR controllers, and the AI system adjusts the environment in real-time to reflect the player's actions. This use of AI helps to create a more interactive and dynamic VR experience.

Overall, it is clear that AI is being increasingly used in the development of digital game stories and experiences. These examples demonstrate the potential of AI to enhance the creative process and create more immersive and engaging experiences for players. However, it is also important to consider the ethical implications of using AI in this way, as it has the potential to displace human workers in the entertainment industry. As with any technology, it

is important to consider the potential risks and benefits of AI to better ensure its responsible and ethical use.

One potential concern with the use of AI in story generation is the potential for biased or unfair narratives to be created. AI systems are only as unbiased as the data they are trained on, and if the data used to train an AI system is biased, then the AI system may also be biased. This can lead to the creation of narratives that reinforce damaging stereotypes or spread discrimination. For example, a study by Ng et al. (2017) found that a commercial image recognition system exhibited gender and racial biases. The system was more likely to label images of white males as "professional," while images of women and people of different races were more likely to be labelled as "unprofessional." This type of bias could also potentially be present in AI-generated narratives, and it is important to consider the potential consequences of such biases.

In order to mitigate the risk of biased narratives being created by AI, it is critical to use diverse and representative data sets when training AI systems. This can help to ensure that the AI system is able to generate fair and unbiased narratives. It is also important to have human oversight and review of AI-generated content to ensure that it is not biased or harmful.

Another potential concern of using AI for automatic story generation is the potential for job displacement in the entertainment industry. As AI systems become more advanced, there is a risk that they could be used to automate tasks that are currently performed by human workers. This could lead to job losses in the industry, as AI systems may be able to perform certain tasks more efficiently and at a lower cost than humans.

On the other hand, it is important to note that AI also has the potential to create new job opportunities in creative industries. For example, AI could be used to assist human writers in the development of stories, freeing up their time to focus on more creative tasks. AI could

also be used to generate content that is used as a starting point for human writers to build upon. In this way, AI could be seen as a tool that enhances the creativity and productivity of human workers, rather than replacing them.

In conclusion, the use of AI in the development of digital game stories or experiences, as well as in screenwriting and other forms of media, is becoming increasingly prevalent in the entertainment industry and the use of automatic text generation and automatic story generation technologies has the potential to revolutionize the way stories are told and experienced by audiences. These technologies allow for the creation of unique and dynamic narratives that would not be possible through traditional means.

While there are certainly potential concerns around the ethical implications of this use of AI, such as the risk of biased narratives and job displacement, there is also the potential for AI to enhance the creative process and create new job opportunities.

One way that AI can enhance the creative process is through the use of machine learning algorithms to generate unique and imaginative characters, situations, and other elements in a story. For example, a digital game that utilises AI in its narrative design could create unique and engaging gameplay experiences for players, by generating characters and situations that are tailored to the player's preferences and actions. Similarly, AI can be used in screenwriting to generate story ideas, plot outlines, and even entire screenplays, allowing writers to explore new creative possibilities and streamline the writing process.

Even so, it is important to consider the potential risks and benefits of AI in order to ensure its responsible and ethical use in the entertainment industry. One potential way to mitigate the negative impacts of AI on employment in the entertainment industry is through the use of collaborative AI tools, such as co-writing software or AI assistants that work alongside human writers and other creatives. These types of tools can allow humans and AI to work

together in a complementary way, allowing for the best of both worlds – the creativity and tone of human writers, combined with the speed and efficiency of AI.

In South Africa, the use of AI in the entertainment industry is still in its early stages, but it is likely to become more widespread. There have already been several examples of AI being used in the South African entertainment industry, such as the use of machine learning algorithms to analyse and predict box office success (Mkhize & Nkabinde, 2020).

In the future, AI will likely play an even greater role in the development of film, television, and video game content in South Africa. This presents both opportunities and challenges for South African writers and other creatives, as well as for the industry as a whole. On the one hand, AI could potentially help to drive innovation and creativity in the entertainment industry in South Africa, by providing new tools and techniques for writers and other creatives to work with. On the other hand, it is important to ensure that the adoption of AI in the industry is done in a way that is fair and honest, and that does not unfairly disadvantage South African writers and other creatives.

Chapter 3: Theoretical Frameworks

Osanloo and Grant in their journal article titled *Understanding, Selecting, and Integrating a Theoretical Framework in Dissertation Research: Creating the Blueprint for Your "House"* note that a research study without a theoretical framework, tends to have an unclear structure and vision, and that "the explicit identification and inclusion of a theoretical framework is a necessity of sound research" (2016, p. 14). This section serves to provide a brief overview of the selected theories that underpin this research study.

As this is a study about using Artificial Intelligence to generate stories or narratives and for screenplay/film writing, the main theories that I will focus on are theories on storytelling or narratology and Joseph Campbell's monomyth theory.

The theoretical frameworks discussed in this chapter lay the groundwork for our analysis of AI-generated films in Chapter 4. By applying these theories to the empirical findings, we can gain a deeper understanding of how AI technologies are influencing the creative landscape of filmmaking. This synthesis of theory and empirical data is crucial in addressing our research question and contributes to the broader discourse on AI and creativity.

Narratology is the study of narrative and its structures, as well as the ways in which stories are told and understood (Bremond, 1972). In the field of literary criticism, narratology has become an important tool for analysing and understanding the narrative elements of literature, including character, plot, and point of view (Genette, 1980).

One of the key concepts in narratology is that of narrative structure, which refers to the way in which a story is organized and told (Bremond, 1972). According to Bremond (1972), there are three main components of narrative structure: the narrator, the story, and the discourse. The narrator is the voice that tells the story, the story is the events that are being narrated, and

the discourse is the way in which the story is told, including the point of view and the time frame in which the events take place.

Another important concept in narratology is that of the narrative point of view, which refers to the perspective from which the story is told (Genette, 1980). There are three main types of narrative point of view: first-person, second-person, and third-person (Genette, 1980). First-person point of view is when the narrator is a character in the story and tells the story from their own perspective. Second-person point of view is when the narrator speaks directly to the reader, using "you" as the narrator. Third-person point of view is when the narrator is not a character in the story and tells the story from an external perspective.

The hero's journey or monomyth theory is a narrative structure that has been widely used in literature and film. According to Campbell (1949), the hero's journey is a common pattern that appears in many myths and stories from different cultures. The hero's journey consists of three main parts: the separation, the initiation, and the return. In the separation stage, the hero leaves their ordinary world and begins their journey. In the initiation stage, the hero faces challenges and learns new skills. In the return stage, the hero returns home with the knowledge and skills they have gained on their journey.

In the following sub-sections, I will delve deeper into the theories of narratology and the hero's journey. These concepts will then be used in the next section to analyse the narrative elements of the AI-written films in this study - By examining the films through the lens of narratology and the hero's journey, we can better understand the creative capabilities of AI and how or if it can produce compelling stories.

These theories will be instrumental in answering this study’s research question of whether or to what extend have advancements in AI and machine learning lead computers to be creative or produce creative work and will provide valuable insights into the potential of AI in the field of film and storytelling.

3.1 Narratology/ The Principles of Story

Narratology, with its focus on narrative structures and storytelling, is integral to our understanding of creativity in film. Through a comprehensive analysis of story elements such as plot, character development, and thematic content, narratology provides us with the tools to dissect and comprehend the intricacies of creative storytelling.

One of the primary contributions of narratology to our understanding of creativity is its emphasis on story structure. A well-structured narrative serves as the foundation for a creatively successful film, guiding the audience through a coherent and engaging journey. Narratology enables us to identify the essential components of a strong story structure, including a clear plot progression, well-developed character arcs, and a balanced pacing that maintains audience interest.

In addition to story structure, narratology also highlights the importance of universal themes in creative storytelling. These themes, such as love, conflict, and redemption, resonate with audiences across different cultures and time periods, creating a universal appeal. The creative incorporation of these themes into a narrative enhances the film's ability to connect with viewers on a deeper emotional level, ultimately contributing to its success.

Furthermore, character development is another critical aspect of creativity in storytelling. Narratology provides us with the tools to analyze and understand the intricacies of character dynamics and their role in driving the narrative forward. Well-crafted characters, with relatable motivations and conflicts, add depth to the story and allow audiences to connect with the narrative on a personal level. This connection is a testament to the creative prowess of the storyteller.

The emotional impact of a story is a vital component of its creativity. Narratology helps us to unravel the mechanisms that contribute to the emotional resonance of a narrative, such as the use of symbolism, metaphors, and motifs. By understanding how these elements work together to evoke emotions, we can better appreciate the creative genius behind successful films.

Narratology provides us with valuable insights into the components that make up a creatively successful film. By analyzing story structure, universal themes, character development, and emotional impact, we can deepen our understanding of creativity in storytelling. This knowledge is essential in evaluating the creative potential of AI-generated content and its ability to replicate the complexities of human storytelling.

Screenwriting lecture and author Robert McKee starts his award-winning book, *Story, substance, structure, style and the principles of screenwriting* by stating that "Story is about principles. not rules. A rule says, 'You must do it this way.' A principle says, 'This works ... and has through all remembered time.' The difference is crucial" (2010, p. 3).

According to Giannetti, scholars since prehistoric periods have been interested in the "seductive powers of storytelling" (2017, p. 331). Citing Aristotle's *The Poetics*, Giannetti discusses two forms of storytelling; "Mimesis (showing) and Diegesis (telling)". He notes that Mimesis relates to live performances where events express themselves, while Diegesis relates to forms such as the novel where stories are voiced by a narrator. Film combines both Mimesis and Diegesis and as such, it is a more multifaceted form of storytelling and contains a more diverse set of story elements and principles (Giannetti, 2017, p. 331).

Vogler in the highly acclaimed and influential screenwriting book; *The writer's journey,*

mythic structures for writers, writes that “all stories consist of a few common structural elements found universally in myths, fairy tales, dreams, and movies” (Vogler, 2020, p. xxvi).

Some of these elements that Vogler is referring to above are discussed by McKee in his book cited at the beginning of this section. Referencing past and modern critically acclaimed and financially successful films, McKee claims that; if we were to look beyond the surface, we’d discover that at the core of all these films, vast and different as they may appear, each one of them contains an “embodiment of the universal form of story” (2010, p. 20). He goes on to note that although these different films may enunciate this narrative form in a way that is unique, it is nonetheless universally identical in all *superb* films (2010, p. 20).

3.1.1 Elements of story

The main "elements of story" or narratives as stated by McKee are **structure**, **setting**, **character**, **genre**, and **idea**, he notes that a "beautifully told story is a symphonic unity" in which all these elements blend effortlessly together (2010, p. 30). These core elements of story noted above, are discussed in greater detail below.

3.1.2 Structure

Structure is defined by McKee as "a selection of events from the character's life stories that is composed into a strategic sequence to arouse specific emotion and to express a specific view of life" (2010, p. 33). An event must be triggered by or affect characters, has to occur in a setting (the narrative element of setting will be discussed in more detail later) and the selection of events should not be presented arbitrarily or indifferently, they need to be composed carefully in order to best meet the objectives of a given narrative.

Story events must generate evocative transformation in the life of a character, which is shown and "experienced in terms of a value" (McKee, 2010, p. 33). The concept of story value or values refers to the common virtues of individual experiences that can change from negative to positive or contrariwise from one instant to the subsequent one. Examples of these values may include things such as: "alive/dead (positive/negative) love/hate, freedom/slavery, truth/lie, courage/cowardice, loyalty/betrayal, wisdom/stupidity, strength/weakness, excitement/boredom" etc. (McKee, 2010, p. 34).

In a film, story events are known as scenes which are actions performed mainly by characters against opposition in a relatively unbroken space and time, which changes the apparent value state of a character's life with noticeable consequence.

A collection of scenes makes up a sequence which is the greatest event change in a narrative design and when sequences combine, they result in what's called an act and a narrative or story is built by a series of acts, while "a story is simply one huge master event" (McKee, 2010, p. 44).

A story structure is shaped by the fundamental constant, interconnected outline of events that move through time, also referred to as a story's plot, which most scholars generally describe as the selection of events and their construct in time.

Giannetti notes that a story can be described as the overall theme of dramaturgical action in chronological arrangement, while the plot conversely, comprises the means of overlaying a structural shape over the narrative (2017).

3.1.2.1 The Story Triangle

While differences in event design are countless, McKee notes that they do have limits. He observes that extremes in the art of event design create a triangle which he pertinently termed a *story triangle* and contains strict potentials that chart the entire universe of narratives.

At the top of this story triangle are the principles that make up the *classical design* narrative structure. The classical paradigm, Giannetti notes "is a term invented by scholars to describe a certain kind of narrative structure that has dominated fiction film production ever since the 1910s" (2017, p. 337). The classical narrative structure is without a doubt the most prevalent form of story design (Giannetti, 2017), this structure consists of "stories built around an active protagonist who struggles against primarily external forces of antagonism to pursue his or her desire, through continuous time, within a consistent and causally connected fictional reality, to a closed ending of absolute, irreversible change" (McKee, 2010, p. 47).

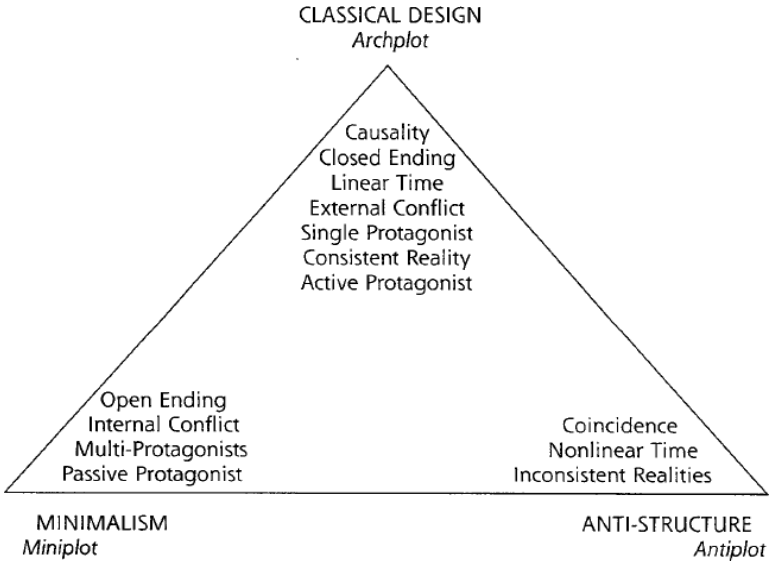


Fig. 4. Robert McKee's Story Triangle. McKee, R. 2010. *Story*: *substance, structure, style and the principles of screenwriting*. New York: HarperCollins

Contrasting the classical narrative structure with what's referred to as formalistic narrative structures, Giannetti notes that, with classical narratives the audience is normally conscious of the storyline's shaping hand, as uninteresting holes in the narrative are corrected by an inconspicuous narrator, who keeps the action on course, stirring the narrative to a precise end point or to the "resolution of the story's central conflict" (2017, p. 336). In formalistic narratives on the other hand, the narrator is perceptibly controlling, oftentimes mixing up the chronology of the story or intensifying and rearranging events to amplify a specific thematic idea (Giannetti, 2017, p. 337).

Another name or term for the timeless principles of the classical narrative structure from the story triangle is the archplot. Although the archplot is the most common of narrative designs - as highlighted previously, it is not the limit or the only way to structure stories.

Referring to his story triangle shown on the previous page, McKee explains that in the triangle's left corner, is another form of story structure design which he calls the miniplot. Derived from the term minimalism, the miniplot according to McKee, starts with elements of

the archplot or classical design but then minimizes these elements, retaining just “enough of the classical that the film will still satisfy the audience” (2010, p. 48).

In the right corner of the story triangle is what is referred to the Antiplot. The Antiplot narrative design is defined as the film equivalent of the “antinovel or Nouveau Roman and Theatre of the Absurd” (McKee, 2010, p. 48).

The Antiplot narrative design unlike the miniplot defined prior, doesn’t decrease the classical, but rather inverts it, opposing established methods to manipulate the idea of recognized principles.

Several other main differences between the archplot and miniplot within the story triangle are discussed below:

The first major difference between the archplot and the miniplot are the endings of the narratives or more specifically, closed versus open endings. The Archplot has what’s called a closed ending whereby questions brought up by the story are answered, feelings aroused are fulfilled, and the audience goes away with a well-rounded complete experience.

The Miniplot conversely has to a certain degree an open ending whereby some of the questions brought up in the story are answered, but a few unanswered questions might lag behind out of the film, leaving it to the audience to provide them after completing the story. In a Miniplot design, a lot of the emotion aroused by the film will be fulfilled, but some excess might remain for the audience to gratify (McKee, 2010).

The second major difference between the archplot and the miniplot is the level in which the conflict exists, external versus internal conflict. The Archplot places importance on external conflict - While characters may time and again have great inner conflicts, what is emphasised are their battles with intimate associations, public organizations, or with challenges in the natural world. The Miniplot in contrast may feature protagonists with some external conflicts

within their households, humanity, and the physical world, but conflicts within the protagonists' own feelings and sentiments whether the character is aware or unaware of them, are what's emphasised in the story.

Another difference between the archplot and the miniplot is the number of protagonists, single versus multiple protagonists. The Archplot typically has a single protagonist with one main storyline making up the bulk of a film's screen time and the narrative's protagonist in a star role.

Conversely if a story is split into several fairly minor, subplot-sized narratives, individually with a distinct protagonist, that leads to a minimization of the dynamic forces of the archplot which results in the "multiplot variation of Miniplot" (McKee, 2010, p. 51).

Another difference with relation to the protagonist in the archplot and miniplot is how proactive they are, an active versus passive protagonist in the relative structural designs. The single protagonist of an Archplot has a propensity to be active and self-motivated, deliberately chasing after a specific goal through constantly intensifying challenges and change. In a miniplot design, the protagonist while not being indolent, is fairly passive, externally idle while chasing their desires internally, struggling with characteristics of their own personality.

The last major difference between the archplot and miniplot is the time design, linear versus nonlinear time. An Archplot starts at a clear point then advances over relatively continuous time and comes to an end at a subsequent point in time. If flashbacks are utilised, they are managed so that the audience can position the story's events in their chronological order. An antiplot in contrast, usually fragments and disjoints time making it hard to place events into any linear order (McKee, 2010).

The differences and distinctions within the story triangle discussed above aren't fixed and inflexible, McKee highlights that every possibility of a given narrative exists within the story design triangle, however not many films have such pure a form that they fall at the triangle's extreme corners. Every side of the triangle is a range of structural options with different stories "blending or borrowing from each extreme" (2010, p. 57).

3.1.3 Genre

> Through tens of thousands of years of tales told at fireside, four millennia of the written word, twenty-five hundred years of theatre, a century of film, and eight decades of broadcasting, countless generations of storytellers have spun story into an astonishing diversity of patterns (McKee, 2010, p. 81).

Genre is "a convenient way of focusing and organizing" story materials, according to film scholar and professor Louis D. Giannetti (2017, p. 354). To organize this flood of stories being referenced in the opening quote above, numerous systems have been developed to categorise stories according to elements which they share, or by classifying them by genre.

Scholars, however, have never agreed about which elements of story to employ when classifying narratives and as such, there's no common consensus among researchers on "the number and kind of genres" that are in existence today (McKee, 2010, p. 81).

Giannetti writes that "a genre film is a specific type of movie" such as a superhero movie, an animated movie, etc. and that there are exactly hundreds of them, particularly in Asia and the United States where nearly all films can be categorized according to genre (2017, p. 354).

It is widely believed that Greek philosopher and polymath Aristotle came up with the first narrative genres by separating stories according to the value-charge of their ending instead of by their narrative design (Encyclopedia Britannica, 2021).

According to Aristotle's The Poetics, a drama could either end on a negative or positive charge (Aristotle, c. 335 BCE). Furthermore, these two types of narratives could also either have a simple design with a flat ending and no surprises or turning points; or a complex one, ending with a major reversal in the life of the protagonist. This then is what made up Aristotle's "Four basic genres: Simple Tragic, Simple Fortunate, Complex Tragic, Complex Fortunate" (McKee, 2010, p. 81).

Throughout the centuries though, the rationality of Aristotle was lost as genre classifications became ever more distorted, and today we have more than four genres. McKee sums up the system for classifying genre and subgenre used by screenwriters today, which takes into account "subject, setting, role, event, and values" (2010, p. 82).

GENRE	SUBGENRE(S)
Love story	Buddy salvation.
Horror Film	The Uncanny, Supernatural, Super-Uncanny.
Western	
War Genre	Pro-war, Antiwar.
Maturation Plot	
Art Film	Minimalism, Antistructure.
Fantasy	
Animation	Farce, High Adventure.
Disillusionment Plot	
Comedy	Parody, Satire, Sitcom, Romantic, Screwball, Farce, Black Comedy.
Crime	Murder Mystery, Caper, Detective, Gangster, Thriller, Revenge Tale, Courtroom, Espionage, Prison Drama, Film Noir.
Social Drama	Domestic Drama, Political Drama, Eco-Drama, Medical Drama, Psychodrama.
Action/Adventure	High Adventure, Disaster/Survival.
Historical Drama	
Biography	
Musical	Musical Drama.
Science Fiction	Superhero, Dystopian, Utopian.
Sports Genre	

Fig. 5. Robert McKee's genre and subgenre system. McKee, R. 2010. *Story*: *substance, structure, style and the principles of screenwriting*. New York: HarperCollins

Although the above list is fairly comprehensive, there could never be a conclusive or complete list of genres, as genres frequently overlap, impact and merge with one another.

Lastly, every genre enforces conventions on story design, examples of this include conventional events such as boy-meets-girl in a romantic film or conventional characters like the criminal in a crime film.

The type of genre greatly controls and restricts the possibilities of a given story, these restrictions and limits referred to as *genre conventions* are “specific settings, roles, events, and values that define individual genres and their subgenres” (McKee, 2010, p. 88).

3.1.4 Setting

Film scholar Susan Hayward in her book; *Cinema studies, the key concepts*, writes that a story setting is part of the concept of mise-en-scene - a term adapted from stage plays which refer to how a director frames their shot(s), and that certain film movements are promptly linked with specific kinds of settings, she lists the following two examples in her book: “the distorted settings of German expressionist films” or “the dimly lit rain-washed streets and empty cold interiors in film noir” (2013, p. 326).

According to Giannetti “The setting of a movie, far more than any play can take over as the central interest” (2017, p. 314). A film's setting is composed of four dimensions: “Period, Duration, Location and Level of Conflict” (McKee, 2010, p. 70).

Period, the first dimension of a story’s setting is concerned with the specific time in which the story is set, for example, a narrative may take place in the present-day world, be set in a historical period, or on an imaginary future. Period therefore is a narrative’s specific point in time.

Duration the second dimension of a story setting is another aspect of time which is discussed above. Duration is concerned with the amount of time that the story covers over the lives of characters, this could be days, weeks, months or even hours. Duration is defined by McKee as “a story’s length through time” (2010, p. 70).

The third dimension of setting is location: where the narrative is situated in space or the story’s physical aspects. The exact site(s) in which the story takes place: the town, neighbourhood, street, or even planet in which the narrative is based.

Level of conflict, the last dimension of setting, refers to the human aspect. McKee emphasises that a setting is comprised of more than just the temporal and physical spheres but includes the social domain as well (2010, p. 70). Characters may have internal conflicts within themselves which they are aware or unaware of, on a higher-level, characters may have personal conflicts with other characters in the story, or a character might conflict with society and its various institutions. Environmental forces are another source of conflict which characters may battle with. A narrative could be set on any of these levels of conflicts or for that matter a combination of them. More concretely level of conflict is “the story’s position on the hierarchy of human struggles” (McKee, 2010, p. 71).

In the best films, according to Giannetti, a setting is not simply a milieu for the story but rather a figurative augmentation of characterization and the theme (2017) – He concludes that “what matters most in a setting is how it embodies the essence of the story material” (2017, p. 310).

Event choices in a narrative are controlled by what’s possible and probable in a story’s setting, whether imaginary or not, only certain events are likely or feasible in specific settings, and a story must “obey its own internal laws of probability” (McKee, 2010, p.71).

3.1.5 Character

Jahan, Mittal, and Finlayson write that characters are focal in all stories and are responsible for guiding events forward. They claim that characters are critical aids to narrative comprehension (2021). While Jeff Gerke discusses plot-first writers, whose emphasis tends to be on the events taking place in the story and not on the characters. Citing the creator of *Star Wars* George Lucas as an example, Gerke notes how Lucas viewed his characters as pieces on a chess set, which he shifted around until the narrative was what he wanted (2010).

Since the dawn of storytelling according to McKee there has been a debate about whether plot or character is more important. He describes how, "Aristotle weighed each side and concluded that story is primary, character secondary" but with the development of the novel, scholars came to believe that character was more important than plot. The debate still continues today without any consensus, because as McKee points out, the argument of character vs plot is misleading. He writes that "we cannot ask which is more important, structure or character, because structure is character; character is structure" (2010, p. 100).

According to McKee, plot and character are the same thing, and as such one can't be more significant than the other. Nonetheless the debate of character vs plot continues because of a commonly widespread misunderstanding over two critical parts of the story bound role; "Character and Characterization" (2010, p. 101).

Characterization as described by McKee is the "sum of all observable qualities of a human being" things such as "age and IQ; sex and sexuality; style of speech and gesture; choices of home, car, and dress; education and occupation; personality and nervosity; values and attitudes" - Every human attribute that can be identified by closely observing and analysing an individual for an extended period. This collection of attributes though, as McKee emphasises "is characterization, but it is not character" (2010, p.101).

True character according to McKee is exposed in the decisions that an individual makes when they are under pressure. The more intense the pressure, the greater the revelation of true character (2010, p. 101).

Underneath an individual's superficial characterization, the only way to grasp their true character according to McKee, to know whether deep down they are "loving or cruel? Generous or selfish? Strong or weak? Truthful or a liar? Courageous or cowardly?" is to observe them make decisions when they are under pressure, to choose to act one way or the other in the pursuit of their goals. Pressure is important McKee emphasises, because as he states, decisions made when there is nothing at risk, mean very little (2010, p. 102).

The purpose of plot according to McKee, is to present increasingly developing pressures that push characters into growing and escalating hard predicaments where they need to make ever more difficult and risky decisions, "gradually revealing their true natures, even down to the unconscious self" (2010, p. 106).

Plot and character are therefore intertwined. As McKee reasons, the plot of a narrative is shaped by the decisions "that characters make under pressure and the actions they choose to take" and true character is exposed by how people decide to act when under pressure; "If you change one, you change the other" (2010, p. 106). As a result of this interlink between plot and character, McKee argues that the expression 'character-driven story' is superfluous, because every story is 'character-driven' (2010, p. 107).

3.1.6 Idea, Meaning and Emotion

As with other art forms, McKee infers that story is and will always be the "experience of aesthetic emotion" and that a well narrated story, provides people with "a meaningful emotional experience" something that they can't get from daily life because as he observes; in life, experiences only grow meaningful when reflected upon and after some time has

passed, while in stories and other types of art, experiences “are meaningful now, at the instant they happen” (2010, p. 112).

According to McKee, there’s two ideas that link the ‘creative process’: the premise, which is the idea that inspires the writing and the story, and the controlling idea - the narrative’s *ultimate meaning* conveyed through the events and “aesthetic emotion of the last act’s climax” (2010, p. 112).

Storytelling is the creative expression of truth, McKee theorises that stories are “living proof of an idea” or “the conversion of idea to action”. A narrative’s plot is the way in which an idea is first expressed and then proved without any elucidation. As McKee puts it; “master storytellers never explain. They do the hard, painfully creative thing—they dramatize” (2010, p. 114).

An audience is seldom drawn, and by no means persuaded, when strong-armed to heed to the conversation of ideas. Dialogue in a film “is not a platform for the filmmaker’s philosophy” writes McKee, and elucidations of “authorial ideas, whether in dialogue or narration, seriously diminish a film’s quality” (2010, p. 114).

The best narratives indorse their ideas only within the subtleties of story events. The inability to communicate an idea through the sheer, truthful effects of character decisions and action McKee condemns as “a creative defeat no amount of clever language can salvage” (2010, p. 114).

Irrespective of genre, this principle of communicating ideas through story events is *universal* as McKee highlights. A narrative’s idea or meaning; ‘comic or tragic’ should be “dramatized in an emotionally expressive Story Climax without the aid of explanatory dialogue” (2010, p. 114).

3.2 The Monomyth theory/ The Hero's Journey

As quoted from McKee in the beginning of the section; "Story is about principles. not rules" (2010, p. 3), referencing Joseph Campbell's *The hero with a thousand faces*, Vogler emphasises that "all storytelling, consciously or not, follows the ancient patterns of myth" and that "all stories, from the crudest jokes to the highest flights of literature, can be understood in terms of the Hero's Journey" or the 'monomyth' (2020, p. 4) as Campbell termed that collection of storytelling principles in his book which Vogler and many others have agreed and say "is one of the most influential books of the 20th century" (2020, p. 3).

Vogler states that filmmakers can use the principles of the hero's journey to design stories that "meet almost any situation" and stories that can "be dramatic, entertaining, and psychologically true" (2020, p. 3).

Using the principles of the hero's journey according to Vogler, storytellers can analyse the problems of any poor narrative and proceed to make rectifications that bring about a story's "peak of performance" (2020, p. 3).

These ideologies of the hero's journey, Vogler claims that are "older than the Pyramids, older than Stonehenge, older than the earliest cave paintings" (2020, p. 4) and Joseph Campbell's influence was in gathering the concepts together, identifying them, communicating, naming, organizing, and exposing "for the first time the pattern that lies behind every story ever told" (Vogler, 2020, p. 4).

The film capital of the world; Hollywood, has realised the value of the hero's journey, and filmmakers such as George Lucas who created the *Star Wars* franchise and George Miller creator of *Mad Max* "acknowledge their debt to Campbell" and the hero's journey, whose principles according to Vogler, can also be recognised "in the films of Steven Spielberg, John Boorman, Francis Coppola, and others" (2020, p. 3).

Stories designed on the paradigm of the Hero's Journey have an allure that Vogler says “can be felt by everyone, because they well up from a universal source in the shared unconscious and reflect universal concerns” (2020, p. 4).

The principles and what’s termed; *the stages of the hero's journey* “emerge naturally even when the writer is unaware of them” (Vogler, 2020, p. 7). All twelve stages are listed and described in more detail below.

3.2.1 The Stages of The Hero’s Journey

The twelve stages of the hero’s journey as they appear in Vogler’s book are as follows;

1. Ordinary world
2. Call to adventure
3. Refusal of the call
4. Meeting with the mentor
5. Crossing the first threshold
6. Tests, allies, enemies
7. Approach to the inmost cave
8. Ordeal
9. Reward (Seizing the sword)
10. The Road back
11. Resurrection
12. Return with the elixir

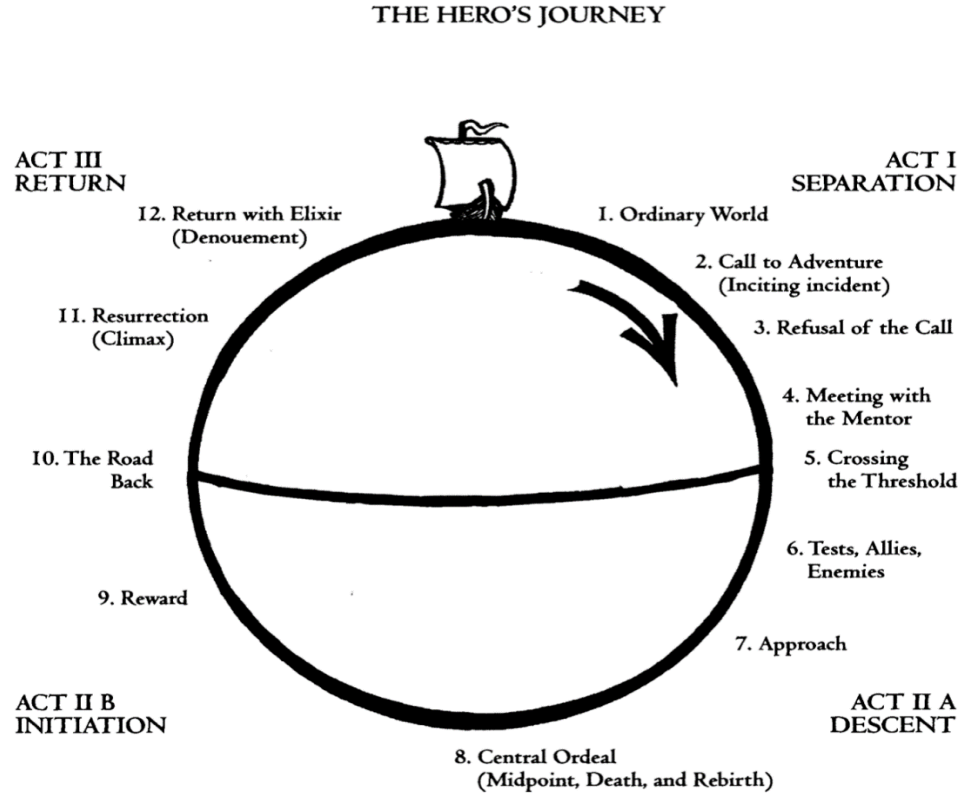


Fig. 6. The hero's journey model. Vogler, C. 2020. *The writer's journey mythic structure for writers*. 4th ed. Studio City, CA: Michael Wiese Productions

1. The ordinary world

According to Vogler, most narratives take the protagonist or the hero out of the "ordinary, mundane world and into a Special World". This is done he writes, in order create a clear contrast between the normal and "the strange new world" that the hero subsequently enters (2020, p. 10).

Using *Star Wars* as an example, Vogler notes how on the film we first see Luke Skywalker the protagonist of the film "being bored to death as a farmboy before he sets out to tackle the universe" (2020, p. 10).

2. **The call to adventure**

In the second stage of the hero's journey, the hero gets introduced to "a problem, challenge, or adventure to undertake" after being introduced to this call to adventure, the hero cannot stay forever in the solace of the ordinary world, again using Star Wars as an example Vogler says that "the Call to Adventure is Princess Leia's desperate holographic message to wise old Obi Wan Kenobi, who asks Luke to join in the quest" (2020, p. 10).

The call to adventure ascertains some of the risk factors or what's at stake for the protagonist. This stage is also where the hero's goal is clearly established. In the crime genre for example, the call to adventure is usually when the investigator is requested to tackle a new case or address a major crime event, in romantic films the call to adventure is normally the first meeting between the hero and their love interest. Vogler states that, most of the time, what's at stake can be articulated as a question presented by the call for example in Star Wars the question is: "Will Luke rescue Princess Leia and defeat Darth Vader?" (2020, p. 10).

3. **Refusal of the call**

Usually at this stage, Vogler points out, the hero hesitates at "the threshold of adventure, refusing the call or expressing reluctance". As they are not yet entirely devoted to the journey, the hero might still have thoughts of going back to the ordinary world.

To get the hero past this turning point, Vogler says that some other force such as "a change in circumstances, a further offense against the natural order of things, or the encouragement of a mentor" may be needed. Continuing with the example from Star Wars – At this stage in the film, Luke declines Obi Wan's call to adventure and goes back to his uncle and aunt's farmhouse, only to discover that they have been killed by the Emperor's stormtroopers. In an instant Luke is no longer hesitant and is now willing to undertake the adventure (Vogler, 2020, p. 11).

4. **Meeting with the Mentor**

At this stage, most stories will have acquainted the hero with a Mentor. Vogler notes that the affiliation between the hero and mentor “is one of the most common themes in mythology, and one of the richest in its symbolic value” (2020, p. 12). The purpose of the mentor is to train the hero to meet with the unknown. Mentors might provide information, assistance or special tools. In *Star Wars* Obi Wan gives Luke his father's lightsabre, which will be essential to him in his combats with the dark side of the force (Vogler, 2020, p.12).

5. **Crossing the first threshold**

At this stage, the hero decisively commits fully to the journey and arrives into the special world of the story by crossing the first threshold. The hero decides to confront the costs of taking on the challenge or problem that was presented in the call to adventure. “This is the moment when the story takes off and the adventure really gets going” (Vogler, 2020, p. 13).

6. **Tests, Allies and Enemies**

After crossing the first threshold, Vogler writes that “the hero naturally encounters new challenges and tests, makes allies and enemies, and begins to learn the rules of the Special World” (2020, p. 14).

7. **Approach to the inmost cave**

At this stage, the hero gets to the point of a risky place, usually this is where where the object of desire is buried, often, it's the site of the hero's antagonist or enemy. By entering the inmost cave which Vogler calls “the most dangerous spot in the special world” the hero also crosses the second major threshold.

Heroes at this stage usually stop at the entrance in order to get ready, strategize, and defeat the villain's protectors. In *Star Wars* the *Approach to the Inmost Cave* happens when Luke

Skywalker and his companions are being pulled into the Death Star where they are to encounter Darth Vader and save Princess Leia (Vogler, 2020, p. 14).

8. **The Ordeal**

At this stage the probabilities of the hero to reach their desired objective decrease substantially. In the ordeal the hero faces a possible death, as Vogler puts it, “The Ordeal is a ‘black moment’ for the audience, as we are held in suspense and tension, not knowing if he [the hero] will live or die” (2020, p. 15).

In Star Wars Vogler states that, the ordeal comes when in the Death Star, Luke, Leia, and their allies are stuck in the oversize ‘trashmasher’ while Luke gets dragged underneath by the ‘tentacled monster’ held down for such a long period of time that the audience starts to wonder if he is dead (2020, p. 15).

In romantic films the death faced by the hero could merely be the momentary “death of the relationship”. Vogler emphasises that the ordeal “is a critical moment in any story” as he explains it, the events of the previous stages leads the audience to “identify with the hero and her fate. What happens to the hero happens to us [the audience]”.

The audience is inspired to live through the near-death experience moment with the hero, their feelings get momentarily despondent, so that they can be resuscitated by the hero’s defeat of death. Vogler states that “The result of this revival is a feeling of elation and exhilaration” he then concludes by re-emphasising that “every story needs such a life-or-death moment in which the hero or his goals are in mortal jeopardy” (2020, p. 15).

9. **Reward (Seizing the sword)**

At this stage in the hero’s journey - after defeating death, the hero now takes ownership of the prize they were after, the reward. Vogler says, the reward may “be a special weapon like a

magic sword, or a token like the Grail or some elixir which can heal the wounded land" (2020, p. 16).

Other times the reward is information and skill that leads to better comprehension and reconciliation with the antagonistic forces. Continuing with the previous example of Star Wars, after rescuing Princess Leia in the film, Luke gets a hold of the plans of the Death Star which is valuable information needed to defeat Darth Vader. In romantic films, the reward is usually when the hero gets reconciled with their love interest (Vogler, 2020, p. 16).

10. The road back

At this stage, which typically comes as the narrative crosses into the third and final act of the film, Vogler writes; "The hero's not out of the woods yet" and they must now face the repercussions of challenging the antagonistic forces of the ordeal (2020, p. 17).

According to Vogler "some of the best chase scenes spring up at this point, as the hero is pursued on the road back by the vengeful forces she has disturbed by seizing the sword, the elixir, or the treasure" (2020, p. 17).

In Star Wars this happens when Luke Skywalker and Princess Leia are wrathfully chased by Darth Vader as they flee from the Death Star.

The road back may also denote the choice by the hero to return to the ordinary world after realising that he must ultimately leave the special world behind, yet there may still linger "dangers, temptations, and tests ahead" (Vogler, 2020, p. 17).

11. Resurrection

Vogler notes how in ancient times; "hunters and warriors had to be purified before they returned to their communities, because they had blood on their hands" (2020, p. 17) and so in this stage of the hero's journey, the hero must be cleansed again with death, for the last time - before going back to the ordinary world.

The resurrection is usually another close encounter with and victory over death, “almost a replay of the death and rebirth of the ordeal” as the antagonistic force has a final and often dangerous attempt at putting down the hero before being ultimately defeated (Vogler, 2020, p. 17).

Vogler writes that “The Star Wars films play with this element constantly” often having an ending fight scene where “Luke is almost killed, appears to be dead for a moment, and then miraculously survives” each ordeal gets him new familiarity and power over the force as these encounters build him up into a better, stronger and more capable character (2020, p. 17).

12. Return with the elixir

At the twelfth and final stage of the journey, the hero has to return to the ordinary world but “the journey is meaningless unless she brings back some Elixir, treasure, or lesson from the Special World” (Vogler. 2020, p. 18).

Vogler defines the elixir as “a magic potion with the power to heal” which he says, may be anything from powerful treasures; “like the Grail that magically heals the wounded land” or something as simple as “knowledge or experience that could be useful to the community someday” (2020, p. 18).

The stages of the hero's journey “can be deleted, added to, and drastically shuffled without losing any of their power” according to Vogler, he emphasises that the framework should be applied using specifics of an individual and unique narrative and that “the structure should not call attention to itself, nor should it be followed too precisely” (2020, p. 19).

3.2.2 Character Archetypes in The Hero’s Journey

Whenever you closely analyse every and all kinds of stories, past and present “you become aware of recurring character types and relationships” (Vogler, 2020, p. 23). When describing

these common character types and their representations, the renowned Swiss psychologist Carl G. Jung according to Vogler, used the term ‘archetypes’ – “meaning ancient patterns of personality that are the shared heritage of the human race” (2020, p. 23).

Vogler posits that, the same kinds of characters appear to frequently arise on an individual as well as a congregate scale, these archetypes he states, are astonishingly constant all through different cultures and eras, and that identifying them “is one of the most powerful elements in the modern storytellers bag of tricks” (2020, p. 23).

This theory of archetypes according to Vogler, is an essential utility for comprehending and identifying the role or purpose of characters in a narrative. If one can understand the purpose of the archetype which a certain character is representing, that can help ascertain if that character is being put to their absolute best use in a given story. Vogler states that “the archetypes are part of the universal language of storytelling, and a command of their energy is as essential to the writer as breathing” (2020, p. 24).

While working as a story consultant for Disney Animation, Vogler indicates that he came to see archetypes “not as rigid character roles but as functions performed temporarily by characters to achieve certain effects in a story” (2020, p. 24), he credits this insight to Soviet folklorist and scholar Vladimir Propp and his book; *Morphology of the Folktale*, which examines themes and recurrent models in hundreds of Russian narratives (2020, p. 24).

According to Vogler, “the archetypes that occur most frequently in stories” (2020, p. 26) are:

1. Hero
2. Mentor
3. Threshold Guardian
4. Herald
5. Shapeshifter
6. Shadow
7. Ally

8. Trickster

As mentioned previously, Vogler determined that archetypes should be viewed “as flexible character functions rather than as rigid character types” (2020, p. 24). A character in a story can display the traits of more than one archetype. Archetypes then, can be thought of as masks that are put on provisionally by characters, as is required to advance the narrative. A character may come into the story playing the role of a threshold guardian, then change masks to function as a mentor, ally or even a shadow (Vogler, 2020, p. 24).

According to Vogler “certain character archetypes are indispensable tools of the trade” and stories can’t be told without them (2020, p. 26), he notes that two questions are important to ask when attempting to distinguish the type of an archetype in a story; firstly, “what psychological function or part of the personality does it [the archetype] represent?” and secondly, “what is it’s dramatic function in a story?”

Vogler’s answers to the questions above, for each of the “most common and useful archetypes” (2020, p. 26) according to his book, are provided below.

The hero, the first archetype, Vogler defines as “someone who is willing to sacrifice his own needs on behalf of others” (2020, p. 28). At it’s source the concept of hero relates to self-sacrifice, according to Vogler.

In psychological terms - Vogler notes, the hero archetype embodies what renowned psychologist Sigmund Freud referred to as the ego; “that part of the personality that separates from the mother, that considers itself distinct from the rest of the human race” (2020, p. 29).

The hero as characterized by Vogler, is the individual that is able to surpass the confines and misapprehensions of the ego, but initially he notes; “heroes are all ego: the I, the one, that personal identity which thinks it is separate from the rest of the group” and as such, the

journey of most heroes is that narrative of that parting from the household or clan, similar to an infant's sense of separation from the parent (Vogler, 2020, p. 29).

The dramatic function of the hero is to provide the audience with a window into the story. Every person watching or hearing a story is induced in the beginning, "to identify with the hero, to merge with him and see the world of the story through his eyes" (Vogler, 2020, p. 30). This is done by designing heroes with an assortment of qualities and a blend of "universal and unique characteristics" (2020, p. 30).

According to Vogler, heroes have characteristics that everyone can relate to and recognize within themselves and they are driven by universal desires that everyone can appreciate such as; "the desire to be loved and understood, to succeed, survive, be free, get revenge, right wrongs, or seek self-expression" (2020, p. 30).

As much as heroes need to embody universal characteristics, sentiments, and inspirations that every person has come to know in their lives, Vogler argues that, they should be unique individuals as well and not "stereotypical creatures or tin gods without flaws or unpredictability" to be effective he writes that, heroes require both 'originality' and 'universality' (2020, p. 30).

Another story or dramatic function of the hero as noted by Vogler is growth. He writes that at times when assessing a screenplay, it's challenging to figure out who the main character is or ought to be and that usually the best answer to that question is: "the one who learns or grows the most in the course of the story" (2020, p. 31).

Heroes prevail over challenges and reach their goals and objectives, but they again learn and acquire additional experience and understanding. The core of many stories is the teaching that happens between a hero and their mentor, or a hero and their love interest in the romance genre, and at times even between a hero and the villain (Vogler, 2020, p. 31).

Acting or doing is another function of the hero in a narrative. Vogler writes that “The Hero is usually the most active person in the script” and that “His [the hero’s] will and desire is what drives most stories forward” (2020, p. 31).

According to Vogler, a common error in screenplays is that the hero is somewhat active during the course of the story, then becomes passive at the most critical events, usually getting help from external opportune forces (2020, p. 31) – A phenomenon usually referred to as *deus ex machina*.

At the most critical moments above all, a hero must be totally active and in control of their own destiny. The hero should complete the conclusive act of a story, the act “that requires taking the most risk or responsibility” (Vogler, 2020, p. 31).

Vogler observes that, most people normally think of heroes as brave or strong, but these traits he notes; “are secondary to *sacrifice*” which is the other dramatic function of the hero archetype in a story. According to Vogler, sacrifice is “the true mark of a Hero” a readiness to give up anything of value, possibly even the hero’s own life, for a cause, belief or group (2020, p. 32).

The last dramatic function of the hero archetype Vogler says, is dealing with death. He writes that, the core of every story “is a confrontation with death” (2020, p. 32).

If the hero doesn't come face to face with literal death, then there is the risk of death or a figurative death; “in the form of a high-stakes game, love affair, or adventure in which the Hero may succeed (live) or fail (die)” (Vogler, 2020, p. 32).

The hero archetype is not always expressed in the protagonist or main character. Vogler says, the archetype can be expressed in other characters too, when they engage in heroic acts and “an unheroic character can grow to be heroic” (2020, p. 32).

Another archetype “frequently in dreams, myths, and stories is the Mentor” according to Vogler, he writes that the mentor is usually a “positive figure who aids or trains the hero” (2020, p. 39).

Joseph Campbell referred to the mentor archetype as the ‘*Wise Old Man or Wise Old Woman*’ as noted by Vogler, who highlights that, the archetype is manifested in every character that teaches, guards and provides the hero with gifts (Vogler, 2020, p. 39).

As per their psychological function, according to Vogler; “Mentors represent the Self, the god within us, the aspect of personality that is connected with all things”. The Mentor archetype wherever they may be run into, “in dreams, fairy tales, myths, or screenplays, stand for the hero's highest aspirations” as noted by Vogler, who also makes the claim that “mentors are what the hero may become if she persists on the Road of Heroes” (2020, p. 40).

Oftentimes, mentors are past heroes who have gone through and endured certain tribulations in their earlier lives and are now forwarding “the gift of their knowledge and wisdom” to the hero (Vogler, 2020, p. 40).

The first dramatic function of the mentor archetype is teaching, Vogler writes: “just as learning is an important function of the hero, teaching or training is a key function of the Mentor” (2020, p. 41).

Giving gifts or ‘gift-giving’ is the second function of the mentor archetype according to Vogler. Referencing Vladimir Propp’s *Morphology of the Folktale*, Vogler notes how the author distinguishes this dramatic function of the mentor “as that of a ‘donor’ or provider: one who temporarily aids the hero, usually by giving some gift” (2020, p. 41).

The last function of the mentor archetype mentioned by Vogler is that of motivation, he writes that; an “important function of the Mentor archetype is to motivate the hero and help her overcome fear” (2020, p. 42).

As with other archetypes, the mentor character is non rigid and is more accurately a role or function that numerous diverse characters might carry out in a narrative. A character that mainly expresses a single archetype such as the hero, herald and even the shadow "may temporarily slip on the mask of the Mentor in order to teach or give something to the hero" (Vogler, 2020, p. 46).

The threshold guardian is the other common character archetype present in most stories. During the course of their journey, every hero faces some obstacles as they make progress to new and unfamiliar territories at "each gateway to a new world there are powerful guardians at the threshold, placed to keep the unworthy from entering" (Vogler, 2020, p. 49), these are threshold guardians.

Vogler notes that "Threshold Guardians are usually not the main villains or antagonists in stories" but are oftentimes "lieutenants of the villain" that are employed to protect or look over their master's terrain (2020, p. 49).

On a psychological level, threshold guardians represent neuroses, Vogler writes about the archetype "they stand for our internal demons: the neuroses, emotional scars, vices, dependencies, and self-limitations that hold back our growth and progress" (2020, p. 50).

Testing the hero is the main dramatic function of the threshold guardian. When heroes meet with threshold guardians, they must usually "solve a puzzle or pass a test" as noted by Vogler who emphasises that "the energy of the Threshold Guardian may not be embodied as a character" but can also be represented in a form of "a prop, architectural feature, animal, or force of nature that blocks and tests the hero" (2020, p. 52).

The herald is another common character archetype, usually appearing in the first act of a narrative, Vogler writes that "Herald characters issue challenges and announce the coming of significant change" (2020, p. 55).

The herald could either be “a new person, condition, or information” that changes the hero's habitual life condition(s), forcing the hero to make a decision, take action and face or confront arising conflict (Vogler, 2020, p. 55).

Vogler also notes that, *A call to adventure* is also often delivered “by a character who manifests the archetype of the Herald” (2020, p. 55).

The psychological function of the Herald archetype according to Vogler is the *Call for change*. Heralds, he points out, have “the important psychological function of announcing the need for change” (2020, p. 56).

Motivation is the main dramatic function of the herald archetype. Vogler writes that “Heralds provide motivation, offer the hero a challenge, and get the story rolling” they also serve the function of alerting the hero to change and adventure that’s coming (2020, p. 57).

The Herald may be anything from an actual person to a force in the form of a natural disaster or even an event such as a stock market crash that sets the narrative in motion. Most of the time, the herald is merely a way of conveying information to the hero about a “new energy that will change the balance” (Vogler, 2020, p. 57).

The shapeshifter, which according to Vogler, people usually have a challenge understanding, is another character archetype, common in most stories. People usually don’t grasp the indefinable archetype of the Shapeshifter because as Vogler states “its very nature is to be shifting and unstable” changing its look and attributes when being intently scrutinized (2020, p. 58).

Nevertheless, Vogler emphasises that “the Shapeshifter is a powerful archetype and understanding its ways can be helpful in storytelling and in life” (2020, p. 58). Shapeshifters vary their façade or disposition and are hard for the hero and audience to figure out, they may

deceive the hero or keep them wary, and their allegiance or genuineness is usually uncertain (Vogler, 2020, p. 59).

The psychological purpose of the shapeshifter "is to express the energy of the *animus* and *anima*" which Vogler says, are terms derived from renowned Swiss psychiatrist, Carl Jung's theories, as Vogler puts it; the animus as termed by Jung refers to "the male element in the female unconscious" the collection of positive and negative imageries of masculinity in a female's dreams and fantasies, while the anima is the equivalent "female element in the male unconscious" (2020, p. 61).

According to Jung's theory described in the preceding paragraph, people have a complete collection of both female and male characteristics which are essential for "survival and internal balance" (Vogler, 2020, p. 61).

Vogler writes that; "the animus and anima may be positive or negative figures who may be helpful to the hero or destructive to him" (2020, p. 61). In certain narratives he notes, it is the duty of the hero to understand if they are dealing with the negative or positive aspect of the shapeshifter.

Generating doubt and suspense in a narrative is the main dramatic function of the shapeshifter archetype according to Vogler, he writes that; the hero must interact or have exchanges with Shapeshifters both male and female, who adopt fronts and articulate lies, intending to baffle the hero (2020, p. 62).

Another common archetype, The Shadow; "represents the energy of the dark side, the unexpressed, unrealized, or rejected aspects of something" (Vogler, 2020, p. 65).The mask of the shadow in narratives as Vogler states, is usually worn by "characters called villains, antagonists, or enemies" (2020, p. 65).

Enemies and villains are often devoted to the “death, destruction, or defeat of the hero” but antagonists as Vogler notes, aren’t always necessarily that *hostile* and they could be “allies who are after the same goal but who disagree with the hero's tactics” (2020, p. 65).

According to Vogler if on a psychological level, the threshold guardian archetype discussed previously stands for *neuroses*, then the Shadow archetype represents *psychoses*; “that not only hamper us but threaten to destroy us” (2020, p. 66).

The Shadow could purely be that dubious part within people that they often grapple with in battles over immoral habits and deep-rooted dreads, which is why Vogler posits; “in dreams, Shadows may appear as monsters, demons, devils, evil aliens, vampires, or other fearsome enemies” (2020, p. 66).

The main dramatic function of the shadow archetype according to Vogler, is to challenge the hero. He notes how, shadow characters give rise to conflict and “bring out the best in a hero by putting her in a life-threatening situation” which is the reason behind the popular saying that; ‘a story is only as good as its villain’ because a powerful shadow compels a hero to grow in order to meet the challenge (2020, p. 66).

Vogler writes that, during their journeys, heroes may require someone to travel with them, and this is where the Ally character archetype comes in. As Vogler states, an ally can help with a range of essential functions, “such as companion, sparring partner, conscience, or comic relief” (2020, p. 71).

According to Vogler, since the birth of storytelling, heroes have teamed up with affable characters, that go into battle alongside them, counsel and caution them and at other times even oppose them. As with several other archetypes, an ally does not have to be an actual person. In reference to certain religions, Vogler notes how spirit protectors such as angels, allotted to individuals may act as allies. He writes that in these religions an ally is usually

“the guardian angel who is supposed to look out for the person and keep them on the right path” (2020, p. 73).

Another example of non-human allies that Vogler lists are animals. He writes that “animals as Allies are common in the history of storytelling”. Goddesses, he notes are notable for having animals as allies, examples include “Athena and her companion owl” and “Artemis and the deer who is often seen running at her side” (2020, p. 74).

In psychology or dreams, the ally represents the enclosed or unexploited bits of the personality that must be affected into action to carry out their responsibilities. Correlated to this psychological function, the dramatic function of allies is to serve as reminders of these *under-utilized* capacities and recall those real acquaintances or associations who might be “helpful to us in the journey of our lives” (Vogler, 2020, p. 75).

The last common archetype the trickster, according to Vogler, represents the dynamisms of deviltry and a longing for change, individuals in narratives who are mostly “clowns or comical sidekicks” exemplify this archetype (2020, p. 77).

Trickster archetypes have a few significant psychological functions. Firstly, these characters as stated by Vogler; “cut big egos down to size and bring heroes and audiences down to earth” also by causing healthy laughter, they assist us in appreciating our shared or mutual relations and bring to light, foolishness, and duplicity. For the most part, tricksters trigger needed change, usually by calling attention to the “imbalance or absurdity of a stagnant psychological situation” (2020, p. 77).

The main dramatic function of the trickster archetype is comic relief, as Vogler puts it; “unrelieved tension, suspense, and conflict can be emotionally exhausting, and in even the heaviest drama an audience's interest is revived by moments of laughter” (2020, p. 78).

In conclusion, the theoretical frameworks discussed in this chapter are instrumental in shaping our understanding of artificial intelligence (AI) and creativity, particularly in the context of narrative-driven artistic forms such as filmmaking and video games. The theories and concepts explored here, including narratology and the Hero's Journey, provide the necessary tools and perspectives to critically analyse AI-generated creative works, directly contributing to our research question or aim: Can AI and machine learning technologies truly be creative or produce creative work?

These frameworks allow us to dissect and understand the narrative structures, character arcs, and thematic content of films both human and AI written. By doing so, we can assess the extent to which AI can replicate or even enhance traditional narrative forms, ultimately evaluating the creative capabilities of AI and machine learning technologies in these domains.

Furthermore, the implications of this study extend beyond the realm of filmmaking to encompass other narrative-focused art forms such as video games. The insights gleaned from applying these theoretical frameworks to AI-generated films can be used to explore the world of video games, where storytelling plays a crucial role in engaging the audience and enhancing the gaming experience. The findings of this study can contribute to our understanding of how AI can be utilized to create immersive and innovative narrative experiences, further pushing the boundaries of creativity in this and other narrative based fields.

By grounding our analysis in these robust theoretical frameworks, we are better equipped to answer our research question and contribute valuable insights to the ongoing discourse surrounding AI, machine learning, and creativity in narrative-focused art forms.

Chapter 4 Research Methodology

4.1 Research Questions

4.1.1 Main Research Question

To what extent can Artificial Intelligence exhibit creativity in authoring film screenplays, as evaluated through a comparative analysis using the 90-point screenplay guideline?

4.1.2 Sub-Research Questions

1. How do AI-authored screenplays align with traditional narrative structures, precisely the elements of the Hero's Journey?
2. Regarding narrative creativity and structure, how do various AI-authored screenplays compare when analysed using the 90-point guideline?

4.2 Research Aims and Objectives

This research aims to investigate whether artificial intelligence and machine learning technologies can enable computers to produce creative work and advance techniques for computational creativity. The specific objectives of this research are:

1. To examine common story/narrative elements and hero's journey patterns in three AI-written short films.
2. To compare and contrast the creativity and adherence to the 90-point guideline for writing and analysing screenplays of three AI-written short films.
3. To contribute to the understanding of the potential of artificial intelligence and machine learning in creative industries, storytelling, and the field of computational creativity.

4.3 Research Methodology

This study employs a qualitative research methodology, specifically a comparative case study analysis of three short films written by an AI bot named Benjamin and submitted to the sci-fi London 48-hour challenge. To ascertain AI's capabilities in cinematic storytelling, this study employs a structured yet dynamic approach. A comparative case study analysis forms the crux of the research for evaluating screenplays authored by AI against human-written counterparts. The choice of the 90-point guideline for screenplay analysis, a comprehensive tool, ensures an objective evaluation. This tool, renowned for its ability to dissect narrative structure, character arcs, and plot progression, offers a standardised measure, enabling a balanced comparison. While acknowledging its limitations, this methodology was deemed apt for the research objectives, providing a structured lens to evaluate and understand AI's narrative prowess.

4.4 Study sample

The main case studies for this research are three short films written by an Artificial Intelligence Bot. The AI Bot which named itself Benjamin, was built by Goodwin, an AI researcher at New York University (Kurt, 2018). Parikh provides an introduction to Benjamin's films in his paper on *AI Film Aesthetics,* writing that "Director, Oscar Sharp, and Ross Goodwin, an AI researcher at New York University, produced each of these films as experiments in performance and neural network training for script-writing or storytelling purposes and aimed to challenge the limits of generating narrative from numbers" (Parikh, 2019, p. 17).

Benjamin's films were all entered to compete at the Sci-Fi London film festival's 48-hour challenge, which, according to the festival's website, is a competition where filmmakers are given the title of the film they have to produce, a piece of dialogue that one of the characters

must say on screen, a list of props that must be seen in the film, as well as a non-compulsory scientific theme or idea such as ‘nano-tech, cloning, gene-splicing’ and have to deliver a film within two days to a panel of industry expert judges.

Sunspring (2016), Benjamin’s first film and “the first film ever written entirely by an artificial intelligence”, according to award-winning filmmaker Oscar Sharp’s website, who also directed the film, stars Thomas Middleditch, Elisabeth Grey & Humphrey Ker and was made in 48 hours for the Sci-Fi London's 48hr Film Challenge in 2016, placing in the top 10 of the festival, according to Sharp’s website.

Sunspring (2016) “is a short science fiction film that revolves around what might be a love triangle playing out in a futuristic space station” as observed by Parikh, who has written a paper on Benjamin’s films, the actors were given a screenplay that did not make any ‘contextual sense’ and assigned meaning to it “by way of their dramatic renditions of the dialogue” (2019, p. 17). The screenplay had “impossible or unreasonable screen directions like ‘he is standing in the stars and sitting on the floor’ and ‘he goes to the skull’… [so] the actors played the primary role in saturating the film with possible meaning” (Parikh, 2019, p. 17)

Benjamin’s 2nd film, *It’s no game* (2017) Starring David Hasselhoff, Sarah Hay, Tom Payne, Tim Guinee and Jake Broder, also made for the Sci-Fi London's 48hr Film Challenge in 2017, came in at 3rd place. *It’s no game* (2017) centres around scriptwriters who discover the uselessness of “going on a writers strike because of AI taking over the film industry and writing movies” Parikh writes about the film that it “acknowledges the self-reflexive capabilities of AI films by way of its narrative revolving around the exact system that composed it” (2019, p. 17).

A Long short-term-memory, recursive neural network machine-learning algorithm was used to write both screenplays of *Sunspring* (2016) and *It’s no game* (2017). The algorithm makes

sure that a program ‘remembers’ its input so as to be able to temporally create classifications of correlated data, as such, even though the screenplay may not “make the most sense contextually” it is nonetheless “syntactically in place” allowing Benjamin (the AI program) to refer back to previous dialogue and the data it has been fed as input for the production of the script” (Parikh, 2019, p. 19).

Benjamin’s third and final film, *Zone Out* (2018) was, Sharp claims; an “attempt to have Benjamin write & act & direct & score a film” and starred ‘poor simulations’ of Thomas Middleditch, Elisabeth Grey and Humphrey Ker. Also made for Sci-Fi London's 48-hour Film Challenge in 2018. *Zone Out* (2018) was “disqualified for excessive use of existing footage” according to the filmmaker’s website but will still form part of the analysis as it makes for a unique and thought-provoking case study, being the only one of Benjamin’s films that was not just written but also directed by an AI.

Because this is a qualitative study, a large sample size is not required, as espoused by Silverman in his seminal textbook *Doing qualitative research* (2013) that “one case is usually enough” (2013, p. 612) and that “the validity of qualitative analysis depends more on the quality of the analysis than on the size of the sample” (2013, p. 122).

4.5 Comparative Analysis

A qualitative research methodology was adopted for this study. Specifically, a comparative case study analysis of three short films in total – the three films, which were all written by Benjamin, an AI Bot and entered to compete at the sci-fi London 48-hour challenge, are compared and contrasted with each other using the *90-point guideline for writing analysing screenplays* tool.

A comparative analysis was chosen as the method of investigation for this research because as Jordanous emphasises in her 2012 paper about the challenges of assessing computational

creativity, “a comparative scientific evaluation of creativity is essential for progress in computational creativity.” It is also worth noting that “computational creativity evaluation can be considered one of the ‘Grand Challenges’ of computational creativity research” (2012. p. 246).

This above cited ‘grand challenge’ is emphasised by many in the field. Lamb, Brown and Clark highlight that countless efforts at computational creativity require thoroughness particularly in evaluation where “there is no consensus on how to evaluate a creative system” (2019, p. 1).

It is essential to offer a brief overview discussion on computational creativity evaluation before proceeding with the analysis, to put into clearer context, the dynamics, challenges, and subtleties confronted, specifically for this particular study of AI generated film content.

A significant argument in computational creativity evaluation is around “whether evaluation of a creative system should focus exclusively on the output produced by the system or whether the processes built into the system should also be taken into account” (Jordanous, 2012, p. 260).

Most scholars however, reason that people usually appraise “the creativity of others by what they produce” for the main reason that “one cannot easily observe the underlying process of human creativity” as stated by Jordanous in her 2012 article titled *A Standardised Procedure for Evaluating Creative Systems: Computational Creativity Evaluation Based on What it is to be Creative* (2012, p. 260). Jordanous goes on to conclude about the process vs product/output debate that, the internal system processes may be regarded as ‘unknown’ while evaluation “concentrates on the system’s results” (2012, p. 260).

Based on the argument above, therefore for this study, evaluation will focus mainly on the content; screenplays/films produced by the AI system and apart from the brief mention of the

system's neural networks, the internal and technical processes of the system will not form part of the basis of the analysis. Jordanous describes the following standardised procedure for computational creativity evaluation: firstly, to identify a definition of creativity that a system is supposed to meet in order to be deemed creative; to consider which aspects of creativity are chiefly important in the domain that the system works in and lastly to specify what methods to use to evaluate the creativity of the system (2012, p. 249).

For this specific study, the system will be deemed creative if the content, screenplays/films it has produced adhere to correct and/ 'timeless' screenwriting/story principles. The most important aspects to evaluate are the main "elements of story" or narratives, as stated by McKee; **structure**, **setting**, **character**, **genre**, and **idea** (30).

The method(s) or evaluation tool that will be used for the analysis is the ***90-point checklist for writing or evaluating screenplays*** created by Dr Francois Human, the principal and head of department at the Tshwane University of Technology's film & drama department (see Appendix A for the complete checklist). The checklist incorporates all the elements of story/screenwriting and Vogler's hero's journey model in the form of a questionnaire. It has been used in both industry and academic research (Human, 2017).

4.6 Analysis

4.6.1 Structure

4.6.1.1 Is the opening and title effective?

The first point to be analysed per the 90-point guideline for analysing screenplays checklist regarding structure is whether the opening and title of the given film are effective. *Sunspring*, Benjamin's first film; opens with the filmmakers explaining how the film was made, focusing specifically on the technical aspects of Benjamin and how an AI Bot wrote the screenplay. The film immediately cuts to two characters, H and C, with H reading a book titled *Sunspring* and remarking, "In the future with mass unemployment,

young people are forced to sell blood". The film does not clearly establish the relationship between the two characters in the opening sequence, which is a crucial element or aspect of the plot (see Appendix B for the *Sunspring s*creenplay).

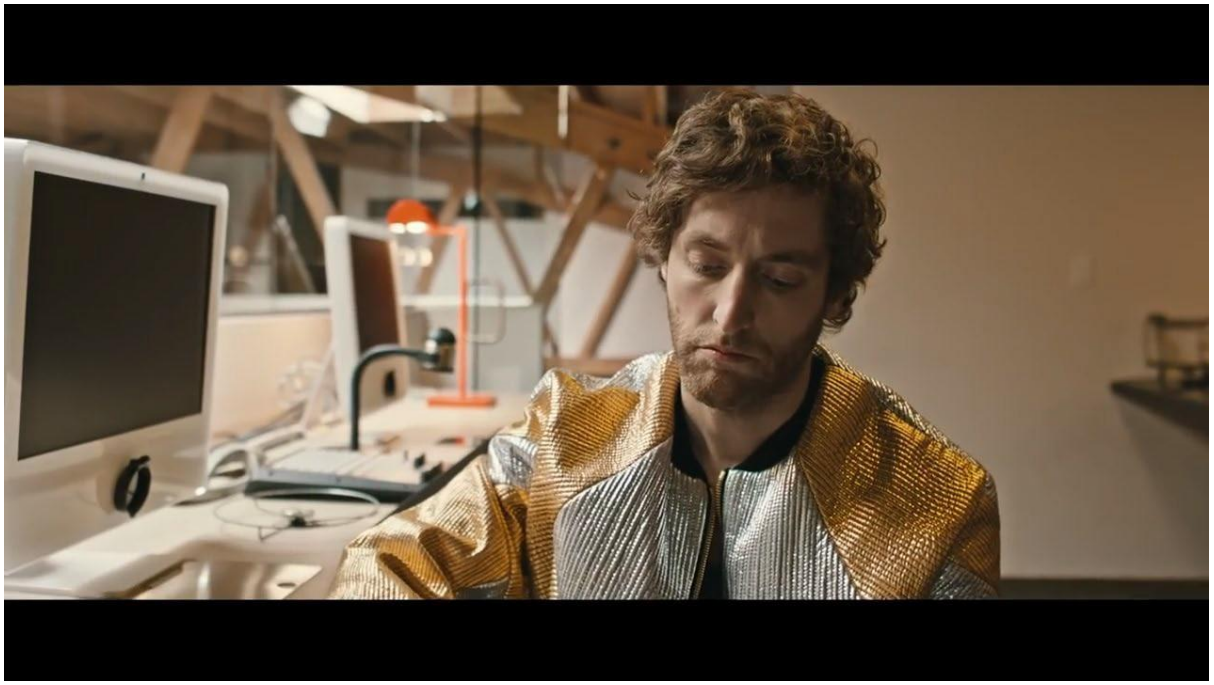


Fig. 4. H reading a book in *Sunspring*. (Oscar Sharp, 2016).

It's no game, as with *Sunspring*, starts with the introduction of the theme via text on the screen as well as the technical process and methods that went into authoring the screenplay before cutting to two writers waiting in the lobby of what appears to be a Hollywood studio. The two characters are introduced in character-revealing circumstances, as the audience sees the name tags that highlight their professions, as both are screenwriters and show the respective guilds to which they belong. Rhea, a studio executive who also serves as the protagonist and antihero of the film, offers the writers tea, which is revealed in the second act of the film to contain a nano microchip. The event foreshadows the first major plot twist that is to come later in the film, right before the climax, where Rhea uses the same microchip to gain control over the writers, so unlike Benjamin's first film, *It's no game* has a

more effective introduction, and opening sequence by its way of introducing and establishing the film's main characters.



Fig. 5. Writers East and West waiting in the lobby in *It's no game*. (Oscar Sharp, 2017).

Zone Out, Benjamin's last film, also begins by exploring how the film was made, just as the two previous films did. This psychologically prepares the audience for the film by using the opening scene to inform them about how it was written, directed, and performed by an Artificial Intelligence. The film then cuts to a sequence which clearly establishes the story's world and introduces the film's protagonist immediately after the first sequence. Just like *It's no game*, *Zone Out* introduces the hero in character revealing circumstances and activities, where we see him reading a newspaper about a case he is directly working on; after cutting to the close-up of the headline in the newspaper, the film transitions to the laboratory where again, we see the hero, Dr Conner engaged in his work.

The introduction of protagonists will be discussed further in the proceeding point.

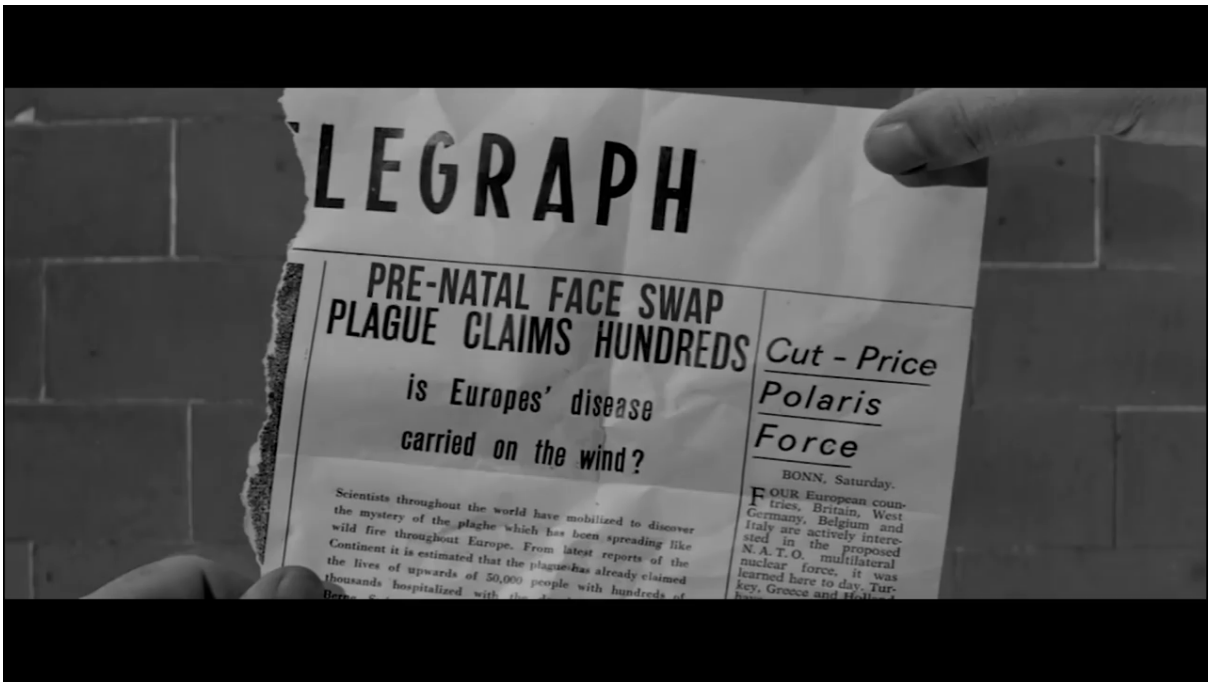


Fig. 6. Close-up of newspaper headline in opening scene of *Zone Out* (2018).

4.6.1.2 Is the hero effectively introduced and established?

The second point to look at with regards to structure is whether the hero is effectively introduced and established. In Benjamin's first film *Sunspring*, the hero is only ambiguously introduced and established and without character revealing activities and circumstances. It is only after the film's first act, that H is perceptible as the protagonist in the film, and the love triangle between him, C and H2 is revealed.

The hero in Benjamin's *It's no game* is clearly introduced and established, using character-revealing circumstances and activities. We can unmistakably see the protagonist, Rhea, overshadowing the other characters and taking charge in her opening scene, where she welcomes the writers to Faraday's films - an organisation she leads and directs them into her office.

In *Zone Out* as well, as with *It's no game*, the hero is introduced and established during character-revealing activities and circumstances, in this instance with Dr Cortner, the film's protagonist at his occupation, diligently working at the laboratory in the film's second scene.



Fig. 7. Protagonist Rhea, talking to the writers on strike in *It's no game*. (Oscar Sharp, 2017).

4.6.1.3 Is the antagonistic force(s) effectively introduced and established?

Per the screenplay analysis guideline, the introduction and set-up of the antagonistic force(s) also require examination. In *Sunspring*, the antagonistic force is effectively introduced and established. However, it may be hard for the audience to identify because of Benjamin's dialogue, which does not make contextual sense.

Although from a direction or cinematography perspective, particularly the two shots with C and H2 when the former is introduced and the close-up shot when C puts her hand on H2's arm in act one of the film, it becomes apparent that the characters are in a love triangle and what is standing between H, the hero from winning over C is the antagonist H2, given that, the antagonistic force opposing the protagonist is ascertained.



Fig. 8. H looking distressed with C and H2 in the background *Sunspring*. (Oscar Sharp, 2016).

The antagonistic force in *It's no game* is distinctly introduced and established. Rhea, the film's protagonist who leads Faraday's films, faces opposition in her goal of rendering screenwriters obsolete by writers (East and West) and their respective guilds, who are revealed in the film's opening to be engaged in an ongoing writer's strike.

Zone Out, the only one of Benjamin's films which was also directed by the Artificial Intelligence program, has the antagonistic forces introduced and established though not given emphasis to, as with Benjamin's prior two films the lack of emphasis on the antagonistic forces may be the result of the film's incomprehensible dialogue. In the first sequence of *Zone Out*, the film sets up how the hero is aiming to identify a distinct substance or element in the laboratory but is clearly struggling to achieve his goal. As such, the antagonistic force is chiefly internal or within the protagonist rather than in the external world but simultaneously, although to a lesser degree, the hero appears to be in conflict with some of

his co-workers; this is shown in the 2nd act where he gets into an intense argument with one of his colleagues.

4.6.1.4 Are the character's goals effectively introduced and established?

The next point of evaluation considers whether the character's goals are effectively introduced and established - In *Sunspring*, the character's goals are not conclusively introduced and established, instead from the three characters' interaction, we can assume that H wants to either develop or sustain a romantic relationship with U, and standing in his way is H2 who appears to want the same thing – this is shown in the opening sequence where H is engaged in an emotional conversation with U, seemingly trying to persuade or win her over, this is also the moment when H2 is first introduced in the film. Entering the scene H2 proceeds without delay to flirt with U, telling her that, "You're so beautiful" the two characters then touch, a heightened beat that's emphasised by the close-up shot; both actions seem to anger H, who then starts shouting at the couple. The tension escalates between the two male characters in conflict when H charges against H2, before restraining himself and informing both the latter and U that; "I am not gonna do anything".

The characters in Benjamin's *It's no game* also have their goals introduced and established, but in a rather indistinct manner. Rhea, from Faraday's films, appears to want to render screenwriters obsolete as her main goal and also convince the two screenwriters, West and East, as well as others who are on strike, that films will no longer be written or watched by people - In her words; "People watching people perform human written drama is a relic".

Zone Out, as with *Sunspring* and mainly because of the dialogue written by Artificial Intelligence, does not have easily identifiable character goals. In the film's second scene, it appears that the hero is trying to identify an unknown substance in the lab and discover its origin, which will seemingly help them solve an ongoing mystery. Peering through a

microscope the protagonist, Dr Cortner remarks, "The only way I can find out where this is from, this thing won't stop".



Fig. 9. Dr Cortner working in the lab in *Zone Out* (2018).

4.6.1.5 Does the first act end with questions that draw viewers into the second act?

Another crucial narrative element per the analysis guideline is if The first act ends with questions that draw viewers into the second act. Because it is hard to intelligibly and contextually follow the narrative in *Sunspring* - mainly due to the dialogue, which seems to drive much of the story but makes very little sense, the first act in the film, thus, does not end with questions that draw viewers into the second act, but may have, had the dialogue been understandable, the audience may have had an explicit idea of the dynamics and the subtleties of the relationship between the three characters.

It's no game dissimilar to *Sunspring* does end with questions that draw viewers into the second act. The first act of *It's no game* ends with a scene where Rhea, the protagonist and antihero of the film who leads Faraday's films, after showcasing different abilities of Artificial Intelligence written dialogue, reveals that she added nanotech into the tea which

she then compelled the screenwriters to drink, giving her total power and control over them. With just a push of a button and voice commands, Rhea can control the writers' speech and/or dialogue; the audience then wonders what is going to happen with the writers in the second act and if they will at last appreciate the power of Artificial Intelligence and thus as Rhea subsequently tells them to "hand themselves over to Benjamin [Artificial Intelligence]".



Fig. 10. Writers East and West being controlled by Rhea in uttering dialogue from the golden age of Hollywood *It's no game*. (Oscar Sharp, 2017).

Benjamin's third film, *Zone Out*, similar to *It's no game* does end the first act with questions that draw viewers into the second act. The first act ends with a tracking shot toward a tightly locked door and the audience is kept in the dark about what is behind the door, leading the audience to wonder and ask questions that we hope will be answered in the second act.



Fig. 11. Tracking shot to tightly locked door in *Zone Out* (2018).

4.6.1.6 Do the obstacles/crises/conflict increase during the second act?

The 6th point in the 90-point guideline for analysing screenplays focuses on whether obstacles/crises/conflict rise in the second act. With regards to *Sunspring* the conflict does increase in the second act where all the characters get into a heated argument, which nearly becomes physically violent when H2 tries to hit H before he stops himself.

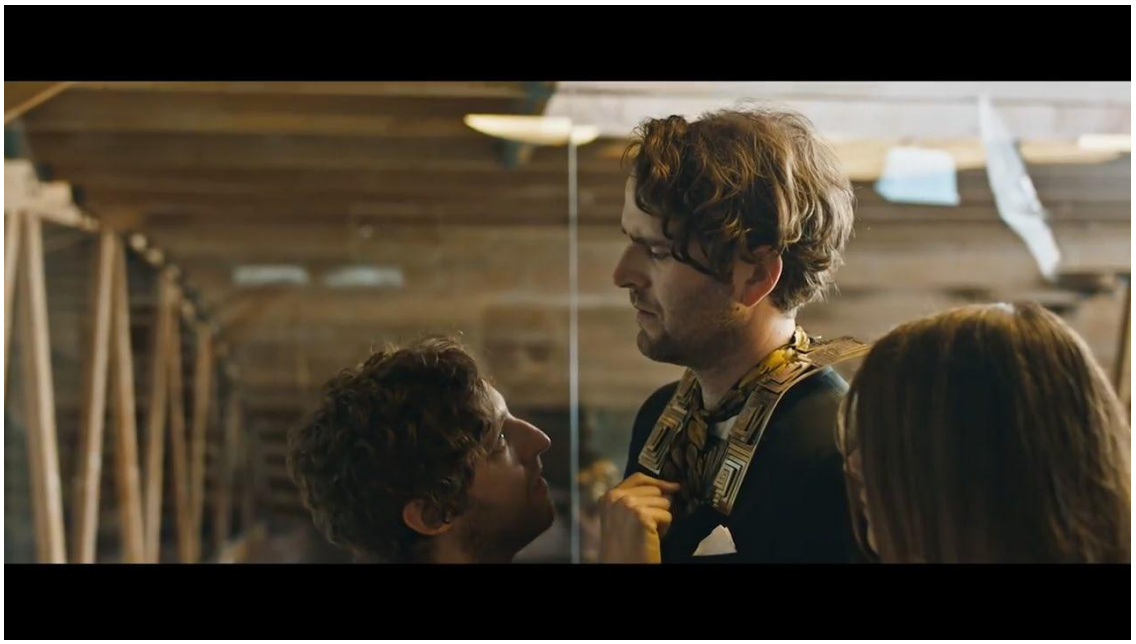


Fig. 12. H looking and H2 in a physical confrontation in *Sunspring*. (Oscar Sharp, 2016).

It's no game similar to *Sunspring* has rising or increasing conflict in the second act. After failing to collegially convince the writers to give themselves over to Benjamin, Rhea grows aggressive and resorts to threatening them. Her hostility frightens the screenwriters, and they flee away from her, losing some of their valuables in the process.

Benjamin's third film, *Zone Out* as with the prior two has rising conflict and crises in the second act. The hero, Dr Cortner in the second act faces the possibilities or dangers of death in a literal sense. After arriving home from work - Dr Bill Cortner gets into a heated argument with a newly introduced female character who appears to be his domestic partner, their fight escalates to a point where she pulls out a gun in an attempt to shoot him.

4.6.1.7 Are all plots effectively integrated?

The next point in the checklist to look at is whether all plots are effectively integrated - This has more utility in a feature length film which often consists of numerous sub-plots, usually with the main storyline driven by the hero or protagonist in pursuit of their goal, and a secondary plot which depending on the genre may be a developing love story between the characters in the film. As such, because the films written by the Artificial Intelligence Bot Benjamin are short films and not feature length, they do not contain any meaningful subplots – The only exception being *Zone Out*, which has a mini subplot of Dr Cortner and his partner within the main narrative of the film, even though it is contained within a single scene.



Fig. 13. Dr Cortner and his partner in *Zone Out* (2018).

4.6.1.8 Does it have a classical dramatic structure / an effective hero's journey?

Another element to consider as part of the analysis is whether the films have a classical dramatic structure / an effective hero's journey. *Sunspring* does have a classical dramatic three act structure. The film starts with the first act, the setup, where the audience gets introduced to the world of the narrative as well as the characters. Specifically, H and U whose relationship drive most of the narrative. The second act, or confrontation begins as H2 enters the scene and gets into an actual confrontation with H while the third act, the resolution happens with U's monologue, as she expresses her most intimate feelings, in a close up shot – this is also the last scene of the film.

Benjamin's *It's no game* like *Sunspring* before it, has a classic dramatic three act structure. Starting with the setup, that establishes the world of the story and introduces the characters. The two writers West and East waiting in the lobby of Faraday Films. The confrontation or second act as with *Sunspring* features an actual confrontation with Rhea and the screenwriters, East and West arguing about the potential of Artificial Intelligence to replace

human filmmakers and even audiences. The third act or resolution in *It's no game* features a monologue scene in this instance by the character; Hoffbot looking into the camera and while delivering the AI written monologue which makes little to no contextual sense.

Benjamin's *Zone Out* does not have an effective three act structure, while the world of the story is established in the opening scene, with the protagonist Dr Bill Cortner looking at a newspaper article, this also serves as the the inciting incident of the film which then transitions to him working at a lab. The second act has rising personal conflict between the characters or co-workers as well as external conflict represented by Dr Bill Cortner's struggle with identifying the unknown element in the lab, the third act or resolution is a tragic one, where one of the protagonist's co-workers appears to get killed by a shadow character which was locked in one of the rooms in the lab but had managed to escape and bring about a sad ending to the film before transitioning to at random, the protagonist laughing while watching a home video in the closing scene of the film.

4.6.2 Plot

4.6.2.1 Is the story based on a well-known literary work/film/person/news event or popular national/international fear/myth/nostalgia?

Another major element of screenplay analysis is the plot of the film, as per the guideline used for this research, the first point of inquiry with regards to the plot is whether the story based on a well-known literary work/film/person/news event or popular national/international fear/myth/nostalgia – *Sunspring*, the first film to be written entirely by Artificial Intelligence is not based on any literary work, event or popular myth, although in the opening scene of the film, the protagonist H, is seen reading a hardcover book titled '*Sunspring*'.



Fig. 14. H reaching for the hardcover book titled “Sunspring” in *Sunspring*. (Oscar Sharp, 2016).

It’s no game, is partly based on *Sunspring*, Benjamin’s prior film as well as on the fear of Artificial Intelligence replacing human beings in certain domains and fields. The two main characters in the film; East and West are told by the anti-hero Rhea, that AI will replace them as screenwriters and replace human audiences as well so that in the future, machines consume entertainment content made for them by other machines.

Zone Out, Benjamin’s last film which was also directed by the artificial intelligence is based on the fear of aliens/monsters or non-humans. The plot of the film revolves around the protagonist Dr Bill Cortner attempting to dissect, analyse and identify a foreign substance or element in his lab which as it is later revealed in the climax of the film comes from a non-human or alien entity.

4.6.2.2 Is there an effective primary plot on which the story stays focused?

The next point of analysis concerning plot in the guideline is whether there is an effective primary plot on which the story stays focused. *Sunspring* does have an effective primary plot

on which the narrative remains focused. The primary plot in *Sunspring* is that of the love triangle between the three characters, H, U and H2.

Benjamin's *It's no game* also has a primary plot on which the story stays focused and that's the main story in the film which has to do with AI replacing screenwriters. The main story in *It's no game* only diverts from time to time to random monologues by the different characters, but except for the monologue by Hoffbot in the closing scene, these monologue scenes too are part of the primary plot, used by Rhea to demonstrate to the writers; East and West, the potential or power of Artificial Intelligence and/Benjamin.

Zone Out similarly does have a primary plot on which the story stays focused too, the plot related to the protagonist Dr Bill Cortner trying to identify a foreign substance/DNA/atom in the lab but the film unlike Benjamin's first two films also has a romantic sub-plot between Dr Bill Cortner and his disgruntled wife who tries to kill him in the second act.

4.6.2.3 Is there effective story tempo (forward movement)?

Next in the evaluation is to examine whether the films written by Benjamin/Artificial Intelligence have effective story tempo (forward movement). The first film; *Sunspring* does have an effective story tempo, with every beat, scene and sequence moving the narrative forward. Even the random musical scene that the film cuts to at the end of the second act, makes for a great transitional scene to the third act and resolution of the film.

It's no game also has an effective story tempo and forward movement, in the first two acts of the film, although after the climax during which Rhea chases the screenwriters East and West out of her office the film seems to slow down - cutting to a random scene of the former mentioned character dancing in the hallway as well as a long take shot of Hoffbot's monologue.



Fig. 15. Rhea dancing in the hallway, in *It's no game*. (Oscar Sharp, 2017).

Zone Out, unlike the first two of Benjamin's films does not have an effective story tempo, it contains scenes which may be deemed as needless, such as the scene between Dr Cortner and a random woman in the street when he drives back from his work – the dragged exchange between the two characters has no overall effect on the narrative and could as well, not have been included in the film.



Fig. 16. Dr Cortner talking to a random woman on his commute from work, in *Zone Out* (2018).

4.6.2.4 Is effective story preparation done (e.g., exposition/foreshadowing/ plants)?

Also, part of the analysis of the plot, is an examination of story preparation (exposition/foreshadowing/ plants). *Sunspring* does not have concrete story preparation while *It's no game* in contrast has effective story preparation done, for example in the opening scene of *It's no game* we see the two characters West and East being offered tea, they do not drink it and as West pours out the tea into a flowerpot, it strangely produces some electrical shock. It is later revealed in the film's second act when Rhea forces the two characters to drink the tea, that it contains "Nanotech" which allows her to gain control over East and West.

Like *It's no game*, *Zone Out* - The only film to not only be written but directed by and starring Artificial Intelligence also has effective story preparation done. In the first act of the film in Dr Cortner's lab, the camera zooms in to a particularly heavy locked door, where an unusual sound can be heard emanating from behind the door, later in the climax of a scene, a cannibalistic nonhuman monster or entity breaks out and emerges from the door, taking a hold of one of the characters before the film transitions to the closing scene.

4.6.2.5 Is there a substantial threat/risk to the protagonist in the core of the story?

Another point to look at per the guideline is whether there is a substantial threat/risk to the protagonist in the core of the story. In *Sunspring*, it can be deduced that the protagonist faces the risk of losing his lover or love object but as mentioned previously; the dialogue of the film makes it challenging to comprehend the entire background and relationship dynamics between the characters.

It's no game in contrast, does not have any substantial threat/risk to the protagonist in the core of the story, the singular implied risk in the film, has to do with the threat the

screenwriters face of being replaced by Artificial Intelligence, which in the context of the narrative is perceptibly inconsequential, as it is unmistakeably clear that the quality of writing produced by AI is inferior to that written by humans.

As with *Sunspring*, mainly because of the AI written dialogue - Is it hard to discern if there is any substantial risk or threat that the protagonist faces in the core of the story in *Zone Out*. While it is clear that Dr Cortner is trying to solve a scientific problem in the laboratory which he works, it is unclear which consequences or risks he would face, should he fail.

4.6.2.6 Does the hero have a disadvantage in the battle?

Another point to look at, with regards to plot is whether the hero has a disadvantage in the battle or not. The hero, H in *Sunspring* has a disadvantage in the battle to win over his love object U, since she has already made up her mind and decided to be romantically involved with somebody else, reasonably this makes it hard for H to win her over considering she is already in love with another character.

In *It's no game*, similarly, the protagonist Rhea has a clear disadvantage in her battle of trying to convince the writers to "hand themselves over to Benjamin" and to believe in the power of Artificial Intelligence to author screenplays. Given that, it is evidently clear that the screenplays being written by Benjamin make "absolutely no sense" as one of the screenwriters informs her. This poor writing by Artificial Intelligence denotes Rhea's disadvantage in the conflict.

As a result of the AI written dialogue in *Zone Out*, it is impossible to discern whether the hero has a disadvantage in the battle or not because the milieu of the events and characters in the film are not comprehensible.

4.6.2.7 Are the primary main characters pro-active?

Since plot drives characters and contrariwise, as per the screenplay analysis guideline an examination of the primary main characters, specifically whether they are proactive or not is essential. Starting first by assessing if the characters engage in the struggle in the narrative; The main characters in *Sunspring* appear to be proactive and engage in the struggle. From the opening scene or first act, H can be seen actively trying to win over U by using persuasion and pleading with her throughout the film.

The protagonist in *It's no game* is similarly proactive, not only does Rhea do all that she can to try and convince the writers of Benjamin/Artificial Intelligence's potential and power. She goes as far as tempering with their food, adding nanotech and forcing them to drink it, in order to gain control over the writers, as way for her to demonstrate the power of Artificial Intelligence.

In *Zone Out*, as explained previously, the dialogue written by Benjamin makes it impossible to decipher characters' motivation or comprehend certain events happening in the film, but Dr Bill Cortner appears to be proactive in his attempt to identify the unfamiliar substance or element at the laboratory where he works as a scientist.

Moreover, with respect to proactivity another factor to consider is whether characters need to make difficult decisions during the course of the narrative. Due to its illogical dialogue, the decisions being made by characters in *Sunspring* aren't fathomable – Although, the protagonist H, may have to make the tough decision of either giving up on his love for U or continue to pursue her and possibly end up heartbroken.

In contrast, the primary characters in *It's no game*, do not have to make difficult decisions. The screenwriters are forced to decide by Rhea to either give themselves over to Benjamin or

continue with their writer's strike, an easy decision to make considering that Benjamin cannot as of yet write at the same quality as they can.

In Benjamin's *Zone Out*, once more because of the film's dialogue it is hard to discern some of the decisions that the characters are making. In the film's second act however, Dr Cortner's wife has to make the difficult decision of whether or not to pull the trigger and shoot her husband.

Additionally, proactivity can be gauged by analysing if characters make plans to reach their goals. In Benjamin's *Sunspring* and *Zone Out* the characters do not make any noticeable plans to reach their goals.

In comparison, the protagonist in *It's no game* does make plans to reach her goal, by adding a nanotech device to the tea which she compels the screenwriters to drink - Granting her the ability to control them and their speech.

The last point with regards to proactivity is an evaluation of how the protagonist approaches challenges and obstacles, specifically to examine whether obstacles force the hero to change (character development), change course or try harder to achieve their goal.

In *Sunspring* the conflict between H and H2 escalates in the second act and almost becomes physical. The altercation between the two characters intensifies, with H seemingly trying harder, through pleading and begging to win over U. Similarly in its no game, obstacles do force the hero to try harder or change course.

After merely trying to convince the screenwriters of the power or potential of Artificial Intelligence via staged demonstrations and failing, the protagonist Rhea does something more dramatic - implanting the AI technology in the screenwriter's using nanotech and controlling them, making them speak in dialogue that's written by Benjamin.

In contrast to Benjamin's first two films, the obstacles that the hero Dr Bill Cortner faces in *Zone Out* are negligible and nevertheless do not appear to force him to try harder or change course in order to achieve his goal.

4.6.2.8 Does the story contain an effective theme/message?

Next, as per the screenplay analysis guideline - is an examination of whether the narrative contains an effective theme/message. Both *Sunspring* and *Zone Out* do not really contain any effective theme/message. *It's no game* in comparison comprises the theme or message that; technology is not always good or beneficial to the human race and shows how computers/machines aren't always cognitively superior to humans despite what experts and enthusiasts may believe and say.

4.6.2.9 Is it predictable what situations will develop/if the hero will reach his goals/how the resolution will take place?

Another important factor to consider with regards to the structure of the film is, if it is predictable what situations will develop or if the hero will reach his goals and how the resolution will take place.

In all of Benjamin's films, it is not predictable what situations will develop or how the resolution will take place. *Zone Out* in particular has numerous plot twists, such as when the protagonist Dr Bill Cortner has a gun pointed at him by his wife and in the climax when the monster/non-human entity breaks out from behind the door and takes a hold of one of the workers in the lab.

4.6.2.10 Are there special physical or psychological preparations for the climax?

Additionally, with respect to film structure a consideration of the physical or psychological preparations for the climax is essential. There aren't any special physical or psychological preparations for the climax in *Sunspring*, this differs to *It's no game* where, after seeing how

overly sensitive or emotional the protagonist gets when the screenwriters insult Benjamin and Artificial Intelligence in general - During the climax when she becomes irrepressible and scares or chases them out of the building, the audience is well prepared for the entire sequence.

Zone Out as with *It's no game* has special preparations for the climax, whereas the latter's are emotional, the former contains physical preparations. In the first act of *Zone Out*, the audience can clearly hear the knocking sound emanating from behind the closed door, which in the climax, the monster that attacks and captures the lab workers breaks out from.

4.6.2.11 Is the hero directly & pro-actively involved in the resolution during the climax?

The final point to examine with regards to the plot as per the screenplay analysis guideline is about whether the hero is directly and proactively involved in the resolution during the climax. *It's no game* is the only one of Benjamin's films where the hero is directly and proactively involved in the resolution during the climax.

The protagonist Rhea starts of by using nanotech to gain control of the screenwriters East and West and thereafter scares them away before running the Benjamin simulation program on herself. In contrast, the heroes in *Sunspring* and *Zone Out* are not proactively or directly involved in the resolution, both being instead passive observers in the scene.

4.6.3 Characters

The fourth overall aspect to be examined as per the 90-point guideline for analysing screenplays checklist is character(s) and their role and impact in the narrative. The goal of this section is to uncover whether Artificial Intelligence or Benjamin can compose well written and effective characters.

4.6.3.1 Whose story, is it?

The first point to examine/question to answer with regards to character is "whose story, is it?" or phrased differently, who is the protagonist in the film? In Benjamin's first film, *Sunspring* H is the protagonist, the protagonist in *It's no game* is Rhea's and Dr Bill Cortner is the protagonist in Benjamin's last film, *Zone Out*.

4.6.3.2 Are characters introduced during character revealing circumstances and activities?

The next point to analyse with regards to film character is whether characters are introduced during character revealing circumstances and activities – *Sunspring* is the only one of Benjamin's films where characters are not introduced during character revealing circumstances and activities.

In contrast, with the opening sequence of *Zone Out*, Benjamin's final film; the protagonist Dr Bill Cortner is revealed for the first time, reading an article related to the work that he is doing at the lab, the film subsequently cuts to Cortner working at his lab. The sequence reveals not just his profession but also gives the audience a glimpse into his psychology. Showing how work occupies the character's mind even when he is outside of his laboratory.

Similarly, the characters in *It's no game* are introduced during character revealing circumstances and activities. Even though the screenwriters are not introduced while occupied in any activity common to scriptwriting, the environment or setting the characters a

4.6.3.2 Is there a clear opponent/shadow?

The next factor to explore with respect to characters is whether there is a clear opponent/shadow in the film - In Benjamin's last two films; *It's no game* and *Zone Out*, there is no clear opponent or shadow to the protagonists, although in the former, it could be argued

that the screenwriters East and West serve as antagonistic forces but the two are not strong enough and do not pose much of a challenge to the protagonist, Rhea and as such, their impact is more or less negligible.

In contrast, there is clear shadow or opponent to the protagonist, H in *Sunspring* which is H2, who is the partner or love interest to U, whom H appears to also want to be romantically involved with.

4.6.3.3 Which hero's journey masks are worn by characters in the story?

Another crucial aspect of character analysis, as per the screenplay evaluation guideline is to determine which archetypes or masks are worn by characters in the narrative.

The first archetype to identify is the hero/heroine. In *Sunspring*, *It's no game* and *Zone Out* the hero/heroine is H, Rhea and Dr Bill Cortner respectively.

Next, we identify which characters in the films, embodied or wore at any point in the narrative the mask of the opponent/shadow. In *Sunspring*, H2 wears the shadow mask throughout the film. In *It's no game*, the screenwriters; East and West embody the shadow character but as mentioned above, both are not strong enough, to take on or challenge the hero, Rhea. During the climax/towards the final act of *Zone Out*, the monster or non-human entity that forcefully apprehends one wears the shadow mask, but only in that single scene.

The subsequent character archetype to identify in each of the films is the Love object – specifically the protagonist's love object. In *Sunspring* as mentioned previously the love object is U. *It's no game* in contrast does not have a love object character while the love object in *Zone Out* could be argued to either be, the woman Dr Cortner meets and flirts with while coming home from work or his wife, who attempts to shoot him in the second act of the film.

The next archetype to identify the reflection/sidekick character – *Sunspring* has no character who could be considered the sidekick while both *It's no game* and *Zone Out* have sidekick characters. In *It's no game*, the sidekick/reflection character is embodied Sam, Rhea's assistant, who obeys her every order. While not as prominent or active as in *It's no game*, I would argue that some of the colleagues or co-workers in Dr Cortner's lab in *Zone Out*, serve as his sidekicks.

The threshold guardian is another character archetype common in well written narratives. In *Sunspring*, H2 temporarily wears the mask of the threshold guardian, while the writers, East and West in *It's no game* act as threshold guardians, testing Rhea and her commitment to making them obsolete and replacing them with the AI scriptwriting program Benjamin.

In contrast, because of the preposterous dialogue in *Zone Out*, it is hard to discern which character wears the mask of the threshold guardian, but Dr Cortner's wife seems to embody the archetype, in the scene where she tries to kill him or more precisely points a gun at him.

The mentor character is, as well - another major archetype to identify as per the analysis guideline. There is no clear character who acts as the mentor in *Sunspring*, most likely as a result of the dialogue, rendering it difficult to identify any single character who espouses wisdom, gives advice and/ gifts in the way that at a mentor character is supposed to.

Similarly, in *It's no game* too, there is no clear character who could be identified as the mentor - While in *Zone Out*, which like *Sunspring* has badly written, illogical dialogue, but could be argued that Dr Cortner's superior in the laboratory briefly puts on the mask of the mentor when reprimanding him, over an unknown concern in the first act of the film.

In all of Benjamin's films certain key characters temporarily wear the mask of the shapeshifter archetype and embody the characteristics of the archetype in distinct scenes

within the narrative. Beginning with *Sunspring* where; U displays some qualities of a shapeshifter as she appears to string along both H and H2.

Rhea too, in *It's no game* wears the shapeshifter mask when she changes from being very friendly and welcoming to the screenwriters on strike East and West, to being agnostic towards them to the point where she scares them off, or leads them to run away from her, in the climax of the film.

In *Zone Out*, Dr Conner's wife temporarily wears the mask of the shapeshifter when she pulls out a gun on him, in the second act of the film.

The trickster archetype only appears in one of Benjamin's films; *It's no game*, where scriptwriters, East and West temporarily put on the mask of the trickster when they are being remote controlled by Rhea and causing them to re-enact different scenes from different Hollywood periods as well as from specific directors, which leads to some comic relief in the scene which is one of the core functions of the trickster archetype.

Sunspring and *Zone Out* in contrast, both do not have an identifiable trickster archetype character(s) in the films.

Lastly, the herald archetype is present in both *Sunspring* and *It's no game*, while in *Zone Out* there isn't a clear Herald character or a character who takes on the role of the herald archetype.

In *Sunspring*, H2 temporarily wears the mask of the Herald when he announces to H and U that they are going to go see the money in the first act of the film while in *It's no game*, Rhea embodies the herald, when she announces; the supreme power and intelligence of Benjamin, a screenwriting AI bot which she believes will replace human scriptwriters.

4.6.3.4 Which type of hero is used?

The next point to examine, according to the screenplay analysis guideline is which type of hero is used in the film, either one who is; “dramatic”, “passive”, “anti”, “willing”, “unwilling”, “comic”, “lonely”, “group oriented”, “ironic”, “tragic” or “catalytic”.

In Benjamin’s *Sunspring* the hero is willing - Although it’s not very clear what his intentions and objectives are in some of the scenes because of the dialogue written by Benjamin which doesn’t make much contextual sense, but the hero H, seems willing to pursue or go after his overall goal of being with U this is demonstrated especially in the first sequence of the film, where the hero is pleading with U and trying to persuade her, seemingly.

The hero in *It’s no game* is dramatic and willing, driven by no apparent external influences but her own internal drive. Rhea is willing to do whatever it takes to achieve her goal of rendering human screenwriters obsolete and replacing them with Artificial Intelligence writer(s).

In *Zone Out*, just as with *Sunspring* the protagonist appears to be a willing hero, but because of the dialogue, it is hard to make out clearly what the hero’s intentions and objectives are as voiced by them.

4.6.3.5 Are the characters original/fascinating/memorable?

The next point to evaluate with regards to characters, is to examine whether they are “original/fascinating/memorable?” as recommended in the guideline for screenplay analysis.

Except for their given names which consist of single letters i.e., H, U and H2, I would argue that the characters in *Sunspring* do not have any characteristics that make them original, fascinating, or memorable.

It's no game unlike *Sunspring*, does have original and fascinating characters, particularly the protagonist Rhea who is a well-rounded character with complex and almost contrasting characteristics; sane and ultra-logical in how she describes the power and potential of Artificial Intelligence, but she is simultaneously impractical and illogical in how she goes about reaching her objective(s), employing extreme methods which not only shock but completely scares off screenwriters, East and West while in the middle of an important meeting.

Because *Zone Out* was not only written but also directed by Benjamin an Artificial Intelligence software program, the film makes use of excessive stock characters and footage, as a result the characters in the film are not at all original.

4.6.3.6 Are there too few or to many characters?

The next point to look at is if there are too few or too many characters in the films and because all of Benjamin's films are short films and not feature length, the number of characters in the films is adequate for the narratives/stories being told.

The only exception to the above statement is *Zone Out*, which has too many characters, some of which could be eliminated from the film and the narrative would not change, such as Dr Cortner's co-workers in the laboratory.

4.6.3.7 Do the characters differ sufficiently from each other?

I also explore whether the characters in each of the films differ sufficiently from each other or not. Starting with *Sunspring*, characters do vary satisfactorily from each other, H the protagonist is more timid, unassuming, and passive-aggressive, while H2 is bold, arrogant and direct, this is best evidenced in the scene when the two get into an argument where H is more timorous and H2 is more daring to the point where he even tries to physically attack H.

Unlike *Sunspring* though, characters in *It's no game* do not differ enough from each other. Screenwriters East and West are virtually identical to each other, their dialogue or speech is nearly synchronous, and even in dress and style the two characters look very similar. The only distinct or unique character in the film is Rhea, it is also worth noting that she is the only female in the film which may well contribute to her uniqueness.

As with *It's no game*, the characters in *Zone Out* too do not differ much from one another, except for the protagonist Dr Bill Cortner who seems to be more courageous and self-assured while everyone else and more especially his co-workers are fearful and tentative.

4.6.3.8 Do the hero and opponent have strong motivations to reach their goals?

I now consider character ambition as mentioned in the guideline or more specifically if the hero and opponent have strong motivations to reach their goals. In *It's no game*, the antagonist(s) have stronger motivations to reach their goals of not allowing Artificial Intelligence to replace them, in that if they fail to reach their goal, they are likely to lose their work, source of income and livelihood, whereas the hero, Rhea does not really have strong or stated motivations to reach her goal of replacing screenwriters with an Artificial Intelligence writer.

With both *Sunspring* and *Zone Out* it is hard to measure the level of motivation that the hero has because of the dialogue, so it is not clear if the hero and the opponent in the film have strong motivations to reach their goals or not. Although it could be reasoned from the film events in *Zone Out*, that the motivation must be strong for the hero, because if he does not achieve his goal of identifying the foreign substance/element in his laboratory, there is a risk of people dying, which is implied at the climax of the film when the nonhuman entity takes a hold of one of Dr Cortner's co-workers.

4.6.3.9 Do viewers identify strongly with the hero?

The next point of analysis has to do with the viewers/audience and if they would identify strongly with the hero. Starting with *Sunspring*, I would argue that there are certain events in the film that would make viewers identify with the hero.

The realisation that the hero in *Sunspring* is in a love triangle or is in love with a person that rejects them and instead chooses someone else, which escalates the conflict between the two male characters in competition with each other, this leads to an assortment of emotions that viewers may identify with, such as love, interpersonal conflict, and rejection, which are all universal emotions experienced by everyone.

Even though the dialogue in *Sunspring* does not make any sense and doesn't afford the characters a way to verbally express their feelings, the events that occur in the film do draw the viewers to the protagonist and his experience.

It's no game unlike *Sunspring* where the viewers identify with the protagonist of the film, has the audience identify not with the anti-hero Rhea who is the main driving force of the narrative but with the screenwriters who are at risk of losing their jobs to Artificial Intelligence, just as the two characters experience a range of emotions, from shock, to worry and extreme fear so too does the audience as we are forced to reflect on the human condition and if some of our creative endeavours can indeed be replaced by artificial intelligence.

In *Zone Out*, the audience does identify with the hero but not nearly as strong enough as with Benjamin's first two films, this is mainly because of how incoherent the narrative events in *Zone Out* are. In the opening sequence of *Zone Out*, where we are introduced to the protagonist and the world of the story, with the hero watching a home-made video. The film cuts into the point of view of the character, before unexpectedly transitioning into the home-made video itself where the protagonist is at a family event. This opening sequence makes

the

character relatable by showing his human side and family life, the film then proceeds to not exploit this to its maximum, as the family and/ relatives except for the wife disappear entirely in the second and third act of the film, which leads to a weakening of the emotional bond that the protagonist established with the audience in the first act of the film.

4.6.3.10 Does character development occur, and does it follow an effective hero's journey?

The last point of examination with regards to character is on character development - if it occurs in the narrative and whether it follows an effective hero's journey. As mentioned on the previous point, all of Benjamin's films are short films and as such character arcs won't be long and rarely developed, as compared to in feature films because the screen time is not sufficient to display a lot of events happening in characters lives.

With *Sunspring*, character development is negligible, and is not linked to the hero's journey narrative model. The H in the closing scene of the film does not differ or show any substantial growth in character from when he was first introduced in the opening scene.

The protagonist in *It's no game* in contrast to *Sunspring*, does go through character development albeit not in a positive way. When first introduced, Rhea appears to be calm, congenial, welcoming, and warm, her character then deteriorates starting in the second act or midpoint of the film where her fixation with Artificial Intelligence writing makes her turbulent and hostile.

The AI written dialogue in *Zone Out* makes it hard to discern if there is any character development linked to, Dr Cortner the protagonist. Although the hero, is the only one from all of Benjamin's films that can be seen going through a clear hero's journey, where he is first in

the ordinary world, and is called to adventure by an article he reads on a newspaper, proceeding to cross different thresholds and meeting tests, allies, and enemies in the form of the work he must do at the laboratory, his wife who attempts to kill him and his colleagues or collaborators respectively.

4.6.4 Emotion

4.6.4.1 What is the primary emotion that the film tries to elicit in the viewers?

The fifth overall aspect to be examined as per the 90-point guideline for analysing screenplays checklist is emotion, and the first point to look at in this regard is the primary emotion that the film tries to elicit in the viewers.

In *Sunspring*, like in many other science fiction films, the primary emotion that the film tries to elicit in the viewer is that of wonder and amazement, not only from the narrative and the plot, but also through how the film was authored or written by an Artificial Intelligence Bot, this information about the screenplay is communicated to the audience in the opening as well as the post-credit scene in the film.

The primary emotion that *It's no game* tries to elicit in the viewers is that of curiosity and wonder as the film purposely posits or elicits a question at the core of its narrative about whether Artificial Intelligence can replace human screenwriters, making the audience ponder that very question during and possibly after the film has ended.

Like Benjamin's first two films, the primary emotion that Zone stimulates in the viewer is that of wonder and curiosity, whereas the first two films were concerned with whether an AI can write a film screenplay, *Zone Out* takes the question much further by also inquiring about whether Artificial Intelligence can effectively star in and direct a film, the resulting emotion from this attempt having AI write, direct and also star in a film is that of perpetual amazement.

4.6.4.2 What is the secondary emotion that the film tries to elicit in the viewers?

Because narratives elicit a range of emotions in the viewer, the secondary emotion that the films prompt in the audience also requires an analysis or to be ascertained.

In *Sunspring*, the secondary emotion is suspense stemming from long pauses by the characters between beats, as well as unusual actions and events, such as when one of the characters randomly spits out an eyeball from their mouth, the viewer is constantly held in suspense over which event is going to take place next in the film.

The secondary emotion elicited in *It's no game* is fear. In the climax of the film when Rhea turns to East and West and tells them that human written films are a relic of the past, while getting off her chair – this act terrifies the writers. The point-of-view angle used in the shot, enhances that fear in the audience, as Rhea speaks directly to viewer, in a very frightening way. The film also causes fear in the audience by making us dreadful of Artificial Intelligence, and the possibility of it, replacing humans and their jobs.

It is not clear what the secondary emotion that *Zone Out* tries to elicit in the audience but in any case, the result ends up being confusion and comedic mainly because of the unusual acting and dialogue from Benjamin.

4.6.4.3 Is emotion generated through story meaning or through melodrama, superfluous dialogue, unfunctional violence/sex/spectacle?

The way in which emotion is generated is also critical to analyse, specifically whether emotion is produced through story meaning or through melodrama, superfluous dialogue, unfunctional violence/sex/spectacle.

The narrative in *Sunspring* does not have a functional classical design or archplot as a result, emotion is generated mostly through melodrama/odd events (cut to random musical sequence, H spitting out an eyeball etc.) and not through story meaning.

In comparison, *It's no game* because of its characteristic miniplot design, generates emotion through both story meaning, and to a much lesser extent superfluous dialogue. While *Zone Out* as with *Sunspring*, generates emotion mainly through melodrama with very little emotion rooted in the narrative itself.

4.6.4.4 How wide is the range of emotions that characters (individually and as a whole) display?

The next point is to analyse how wide the range of emotions that characters (individually and as a whole) display. In both *Sunspring* and *It's no game* characters show an extensive breadth of emotions.

When he is first introduced, H appears to be in a state of disenchantment, this quickly changes to range in the same scene when he gets mocked by H2 and their mutual love interest U. In the second act of the film H goes through other scenes where he is visibly unhappy, this emotion is heightened by the background score which contains lyrics also written by Artificial Intelligence.

Similarly, in *It's no game* as discussed in detail in the beginning of this sub-section, the characters, most notably the protagonist Rhea and to a lesser extent East and West as well, display a very wide range of emotions, oftentimes changing emotional states several times in a single scene.

In contrast to both *Sunspring* and *It's no game*, characters in *Zone Out* display a narrower range of emotions. Apart from the apprehension shown by the hero, in the scene when his wife tries to shoot him, Dr Cortner goes through the film with a uniform scope of emotions often impassive and detached regardless of the events that are happening around him.

4.6.4.5 How effective is the conflict and confrontation?

Correlated to emotion, the effectives of the conflict and confrontation in the films necessitates an evaluation as recommended in the screenplay analysis guideline. The narrative arch in *Sunspring* focuses on both internal and external conflict between the characters, and this is effective in driving the narrative forward.

Not only does the protagonist appear to have internal conflicts within himself, he also faces external conflict with U, which escalates rapidly and almost becomes physical in the second scene of the film when H tries to hit U.

The conflict in *It's no game* is mainly external and focuses on both Rhea the antihero of the film vs the screenwriters; East and West – I would argue that the conflict in the narrative is also between the screenwriters and the Artificial Intelligence that's being made to completely replace them and human audiences too. The conflict escalates and reaches a peak at the climax during the confrontation between Rhea and the writers.

Unlike in *Sunspring* and *It's no game*, the conflict or confrontation in *Zone Out* is not effective. It is difficult to determine who or what precisely is Dr Cortner in conflict with, although some conflict arises from the work he is doing at the lab and the challenges he faces in trying to achieve his goals and objectives, the level of difficulty or conflict is not apparent and thus cannot be closely followed and scrutinized, as a result it becomes impossible to know if and how effective the protagonist's actions are in dealing with the conflict.

4.6.4.6 Are there complications/revelations/discoveries/twists/reversals/surprises?

Complications/revelations/discoveries/twists/reversals/surprises are also crucial to emotion in a narrative as presented in the guideline and as such require careful consideration.

There aren't any significant plot twists in *Sunspring* which causes the narrative to go in a different direction, there are however odd moments in the film which I have described in greater detail in prior sections that may surprise the audience.

Unlike *Sunspring – It's no game* does have a significant turning point, occurring in the midpoint of the film when it is revealed that the tea which Rhea compelled the screenwriters to drink contains nanotechnology that allows her to control them or their speech at will.

Zone Out too, as with *It's no game* does have substantial complications and surprises. The first one occurring in the second act of the film where, as mentioned previously; Dr Bill Cortner's wife attempts to kill him. Again, in the third act or during the climax of the film complications occur when one of the laboratory workers gets ensnared.

4.6.4.7 Is there an effective pattern of emotional level/polarity changes?

The last point to analyse with regards to emotion is whether there is an effective pattern of emotional level/polarity changes in the films – beginning with *Sunspring*, I would argue that the film does not have effective emotional polarity change. As mentioned above, the emotional range that the characters individually and as a whole display in *Sunspring* quite narrow. The protagonist, H for example, seems to be in a perpetual state of sadness and the only time this changes is in the first scene when he is angered by U and tries to physically attack him.

It's no game, just like *Sunspring* does not have an effective enough emotional polarity within scenes. The main characters: Rhea the protagonist and the screenwriters display at most two different emotional states throughout the entire film; excitement and rage as well as scepticism and fear respectively.

As it is with Benjamin's first two films, the characters in *Zone Out* only display minimal polarity with regards to emotional states. Dr Cortner goes through the entire film void of emotion and only shows slight panic when his wife points a gun at him.

4.6.5 Dialogue

4.6.5.1 Does each character have distinct dialogue (vocabulary, grammar, duration, etc.)?

The last major narrative element to be studied, again from following the guideline for screenplay analysis is dialogue which consists of five main points. The first point to look at is if each character in the films has distinct dialogue (vocabulary, grammar, duration, etc.).

Beginning with *Sunspring* again, I observe that characters in the film do not have distinct dialogue and speak using the same vocabulary and grammar. The dialogue written by Benjamin as emphasised previously does not make any sense when analysed within the context of the entire film or even scene by scene but when isolated, the meaning behind some of the dialogue can be understood, such as the first piece of dialogue uttered in the film by the protagonist H; "In a future with mass unemployment, young people are forced to sell blood."

Like *Sunspring*, the characters in *Zone Out* do not have distinct dialogue and speak using the same manner of speech and articulation, while *It's no game* has well written and sensible dialogue which is likely the result of the screenplay being written in collaboration with human filmmakers and not exclusively by AI.

4.6.5.2 Is dialogue obviously and unnaturally used for exposition/aimed at viewers?

The second point to examine with regards to dialogue, is whether it is obviously and unnaturally used for exposition/aimed at viewers. In both *Sunspring* and *Zone Out* this is not the case, while in *It's no game* the dialogue is utilised for exposition although not in an

unnatural way, for example the audience finds out that there was nanotech in the writers' tea Rhea's through dialogue and with her speaking directly to the camera.

4.6.5.3 Is there too much/little dialogue?

Next, per the guideline is an inquiry into the extent of the dialogue or whether there is too much/little dialogue in the films. Both *Sunspring* and *Zone Out* have excessive dialogue. Most of the dialogue in both films can be eliminated and the narrative would remain unaffected. *It's no game* in comparison, although it has a lot of dialogue too like *Sunspring* and *Zone Out*, its dialogue co-written by human screenwriters and not exclusively by Artificial Intelligence enhances the narrative.

4.6.5.4 Does the dialogue flow naturally, e.g., dialogue hooks, silence, nods?

Lastly, in terms of dialogue or its flow, whether it is natural (dialogue hooks, silence, nods.) or unnatural is considered. In *Sunspring* the dialogue does flow naturally, this can be attributed largely to the performance of the actors and less to AI written dialogue.

As with *Sunspring*, the dialogue in *It's no game* does flow naturally too, what is worthy of note is how organic sounding both the human written dialogue and the dialogue written by Benjamin are. Like in *Sunspring* again this can be attributed to the actors' performance and delivery, but unlike *Sunspring*, the dialogue in *It's no game* makes sense throughout the film and supplements the narrative.

Dialogue in *Zone Out* does not flow or sound natural. This is a result of Artificial Intelligence writing, directing, and starring in the film. In certain scenes the dialogue is indistinct such as when one of the laboratory workers gets into an argument with the protagonist. As he speaks, the output is muddled, and as with the other characters; his pitch is continuously inconsistent, resulting in clear, evident, robotic sounding speech.

4.7 Summary

The research question of this investigation was to determine To what extent can artificial intelligence can exhibit creativity in authoring film screenplays, as evaluated through a comparative analysis using the 90-point screenplay guideline? To answer this question, an analysis of three films written by AI was conducted. This analysis aimed to assess whether the films produced by AI demonstrated any evidence of creativity as judged by the most common elements in successful human-written screenplays. The study focused on three short films written by an AI bot named Benjamin, which was built by AI researcher Ross Goodwin at New York University. The films were entered into the Sci-Fi London 48-hour film challenge, with *Sunspring* (2016) placing in the top 10, *It's no game* (2017) coming in 3rd place, and *Zone Out* (2018) being disqualified for excessive use of existing footage. A comparative case study analysis of the three films was conducted using a 90-point guideline checklist for analysing and writing screenplays. Dr. F Human developed the checklist from a collection of observable elements of the most successful screenplays judged by box office returns.

The research methodology employed in this investigation involved the following steps. Firstly, the researcher identified and selected the films which were all written by AI and conducted an in-depth analysis of the films. This involved examining the films' narrative structure, plot, characters, dialogue, themes, motifs, and symbolism present in the films to determine if they were indicative of creative thought.

The role of human involvement in the creation of these films was also taken into account This involved analysing the extent to which the films were generated through algorithms or human input.

This investigation's findings revealed that while AI's films were technically impressive, they lacked the creative flair and originality typically associated with human-generated works. The films' narratives were mostly incoherent, the characters lacked depth, and the themes and motifs were clichéd or non-existent.

Additionally, the films lacked the personal touch often present in works created by human artists. This leads to the conclusion that while AI has made impressive strides in the field of content creation, it cannot still create truly original and creative work at the same level as humans.

As the field continues to progress, AI will likely be capable of exhibiting creativity and writing screenplays and other creative works that are indistinguishable from human-created ones. A summary of some of the key findings follows below.

4.7.1 Structure

In this section of the research paper, the opening and title of three films by AI Bot, Benjamin: *Sunspring*, *It's No Game*, and *Zone Out* were analysed. The researcher evaluated the effectiveness of the opening and title in each film using a 90-point guideline for analysing and writing screenplays. The researcher found that in *Sunspring*, the opening and title were not effective as they failed to establish a clear relationship between the two main characters, which is a crucial element of the structure and an important factor in screenplay writing. On the other hand, both It's No Game and *Zone Out* had effective openings, as they introduced and established the main characters and the world of the story in a somewhat efficient manner. The author also evaluated the effectiveness of the introduction and establishment of the hero and the antagonistic force in each film. In *Sunspring*, the hero was only ambiguously introduced and established, while the film's dialogue made it hard for the audience to clearly identify the antagonistic force. In contrast, both It's No Game and *Zone Out* effectively introduced and established the hero through character-revealing activities and circumstances although both films also do not have strong antagonistic forces which is a critical element in screenwriting. Overall, It's No Game and *Zone Out* had better structured openings compared to their predecessor *Sunspring* this may be the result of the AI algorithm having gotten better and improved at certain aspects of writing and with It’s No Game in particular the result of the human collaboration with the AI.

Both *Sunspring* and *Zone Out*’s dialogue makes very little sense, which results in the audience having a hard time following the narrative. On the other hand, *It's No Game* has better written dialogue again because of the film being co-written with a human screenwriter.

The second act in each of the three films features an increase in obstacles, crises, and conflict. In *Sunspring*, the characters get into a heated argument that nearly becomes physically

violent. In *It's No Game*, Rhea resorts to threatening the screenwriters, which causes them to flee away. In *Zone Out*, the hero faces the dangers of death and so with regards to second act in terms of structure all three of Benjamin's films exhibit a strong adherence to the 90-point guideline and classical narrative elements.

Because all three of Benjamin's films are short and not feature-length, they do not contain any meaningful sub-plots, except for *Zone Out*, which has a mini subplot of Dr Cortner and his partner within the main narrative – a remarkable achievement in its own right as romance sub-plots are quite common in most successful screenplays.

Regarding the classical dramatic structure, all three films have a recognisable classical dramatic three act structure. starting with the setup, which introduces the audience to the world of the narrative and its characters. The confrontation in the second act, and the resolution in the third act – This demonstrates that AI through is able to identify the classic structure in its training data and write in adherence to it.

These findings show that Artificial Intelligence is capable of writing films with a mostly acceptable structure that contains a classical dramatic structure, an increase in obstacles or crises, and questions that draw viewers into the second act. As the technology continues to evolve it is likely that AI will write films with better structure in the future that may even be on the same level as human written screenplays.

4.7.2 Plot

Sunspring, *It's No Game* and *Zone Out* each have their unique strengths and weaknesses in terms of their plot development. *Sunspring* has a primary plot that focuses on a love triangle and a forward tempo to drive the narrative. *It's No Game* also has a strong primary plot that revolves around AI replacing screenwriters, with effective story preparation and a forward tempo in the first two acts of the film. *Zone Out* has a primary plot focused on identifying a

foreign substance in the lab, but lacks an effective story tempo, with some scenes that could be deemed unnecessary and that slow down the narrative. This demonstrates that AI is capable of designing a primary plot by writing not just a series of random events but a sequence of interrelated and connected sequences that make up a story although not always a very logical one.

Another key point analysed was whether there was a significant risk to the protagonist in the core of the story, and with *Sunspring* being the only slight exception, there was no significant threat or risk in the protagonists of all the other films written by Benjamin. Since plot drives characters and contrariwise, an analysis of the characters with regards to plot was also done and the results revealed that most of the characters in Benjamin's films were somewhat proactive, although it was hard to determine if they made plans to reach their goals or had to make difficult decisions throughout the course of the narrative due to the dialogue. Although looking specifically *at It's no game* which has sensible sounding dialogue, it is evident that AI is can effectively plot events with a certain degree of character proactivity.

The plot in all three films is not predictable, with *Zone Out* in particular having numerous plot twists, as well as a strong climax and lastly regarding to plot and character, *It's no game* is the only one of Benjamin's films where the hero is directly and proactively involved in the resolution during the climax, a key significant point and important aspect of narrative or plot design.

4.7.3 Characters

The characters, their role and impact were also analysed. The goal was to determine the level of creativity in AI's ability to craft well-written and effective characters. The first aspect identified was the protagonist of each film. H in *Sunspring*, Rhea in *It's no game*, and Dr Bill Cortner in *Zone Out*. The researcher examined whether characters are introduced during

character-revealing circumstances and activities and found that in *Sunspring* characters are not introduced in an effective manner, while in *Zone Out* and *It's no game* they appear to be. All three films also do not have a clear, present, and strong opponent or shadow to the protagonist which is an important and very crucial element in successful screenplays.

An analysis of the hero's journey masks worn by the different characters was also done. The archetypes and masks identified include the hero, opponent, love object, sidekick, threshold guardian, and mentor. The findings suggest that while AI shows some potential in creating characters and incorporating hero's journey archetypes, there is still room for improvement in terms of character development and their impact on the narrative as most of the characters in the films lacked depth and did not signify any positive character arch in the respective films.

The number of characters in the films were adequate for the short narratives, except in *Zone Out* which has too many characters. The research also concludes that the motivations of the hero and to a lesser extent the opponent are strong in *It's no game*, but not clear in both *Sunspring* and *Zone Out*.

An examination of character development and the level of identification between viewers and the hero was also analysed. In *Sunspring* there is limited character development, and the hero's journey narrative model is not evident. The protagonist in It's No Game undergoes a decline in character, while in *Zone Out*, it is difficult to determine if there is character development due to the AI-written illogical dialogue. The audience's level of identification with the hero varies in the three films, with *Sunspring* and It's No Game eliciting a stronger emotional connection, while *Zone Out* shows a weaker connection due to the disjointed narrative events.

Overall, these findings indicate that compared to structure and plot, AI is not yet capable of writing or creating good film characters as many of Benjamin's characters were not well

rounded or adhered to the principles of story or the 90-point guideline which is based on classical story principles or elements of successful films and the hero's journey.

4.7.4 Emotion

The research examined five aspects with regards to emotion, starting with the primary emotion that Benjamin's films try to elicit in the audience. *Sunspring* as with many other science fiction films that Benjamin was trained on aims to elicit mainly wonder and amazement in the audience. In both *It's No Game* and *Zone Out* the primary emotion elicited is that of curiosity and wonder – These aforementioned emotions stem partly from how the films were made because they are AI-generated, and the audience gets made aware of this at the beginning of the films.

The characters in *Sunspring* and *It's No Game* display a wide range of emotions, while in *Zone Out* the characters display a narrower range of emotions, this is mainly the result of AI being heavily involved in all the production phases of *Zone Out* including the direction and performances.

Sunspring had no significant plot twists, but some odd moments may surprise the audience such as when one of the characters randomly spits out a human eyeball. In contrast, *It's No Game* has significant turning points such as when the protagonist gains control over the screenwriters through nanotechnology. *Zone Out* too has substantial plot twists, complications leading to an effective pattern of emotional level/polarity changes, even though the characters display a limited emotional range.

4.7.5 Dialogue

The dialogue of the films was also analysed to determine its level of creativity and effectiveness. The study evaluated five main aspects of the dialogue, including whether each character had distinct dialogue, whether the dialogue was used for exposition in an unnatural

way, whether there was too much or too little dialogue, and whether the dialogue flowed naturally. In the film *Sunspring*, the characters did not have distinct dialogue and the dialogue did not make sense when analysed in context of the scenes or character beats. However, the dialogue flowed naturally, which was largely attributed to the performance of the actors. The dialogue in *It's No Game* was written in collaboration with human filmmakers and was found to be well-written, sensible, and natural sounding this greatly enhanced the narrative and made *It's No Game* a collaboration between AI and humans the more sensible of all of Benjamin's films. In *Zone Out* which was completely written by, directed, and starred AI, the dialogue did sound or flow naturally, resulting in a robotic-sounding speech and indistinct dialogue in certain scenes.

Overall, the findings highlight the limitations of AI in writing dialogue for films and the importance of human collaboration in creating effective and engaging dialogue, although AI has improved significantly and is now capable of writing dialogue that makes contextual sense, a collaborative endeavour between AI and human screenwriters will still likely result in better dialogue than if the former was writing entirely alone.

Chapter 5: Conclusion

In conclusion, the research conducted in this thesis sought to explore the extent to which Artificial Intelligence (AI) can exhibit creativity in the field of screenplay writing. This inquiry was framed within the context of a redefined research question: To what extent can AI exhibit creativity in authoring film screenplays, as evaluated through a comparative analysis using the 90-point screenplay guideline? To address this question, the study analysed the narrative elements and hero's journey patterns evident in three AI-written short films.

Employing a comparative case study analysis methodology, the investigation utilised a comprehensive 90-point checklist, which incorporated crucial elements of screenwriting theory and the hero's journey model, to methodically assess the creative capacities of AI in screenplay writing. The analysis of the films revealed that Artificial Intelligence is capable of writing films with a mostly acceptable structural design or a classical three-act structure. As the technology continues to evolve AI will likely write more creatively structured films in the future, that may even be on the same level as human-written screenplays. Likewise, with regards to film plot, the research showed that AI is mostly capable of writing screenplays with a satisfactory plot design, that consists of carefully designed and interrelated sequences and not just a sequence of random events, in Benjamin's last film the AI appears to have included a romance subplot in addition to the primary plot of the film, indicating that in the future as the technology continues to progress and improve, it will be capable of plotting events even better, coming up with more creative plot twists or turning points which will unmistakably lead to improved narratives.

In terms of character, however, the research findings reveal that compared to structure and plot, AI is not yet capable of writing or creating good film characters as many of Benjamin's characters were not well-rounded or adhered to the principles of good character design, nevertheless there existed in the films some common hero's journey character archetypes, it is probable then, that with more training and data, AI will be capable of creating or writing better characters.

All three films elicit emotion(s) in the audience, although not through story meaning but mainly through the filmmaking process itself which the audience gets informed of at the start of the films. The fact that the films were written by AI inevitably inspires wonder and amazement. There are, however, substantial plot twists leading to an effective pattern of

emotional polarity changes in Benjamin's last film *Zone Out*, even though the actual characters in the film display a limited emotional range. *It's No Game,* the only one of Benjamin's films co-written with a human screenwriter has excellent dialogue compared to the other two films entirely written by AI, this underscores the limitations of AI in writing dialogue for films and the importance of human collaboration in creating effective and engaging dialogue. Although AI has improved significantly and is now capable of writing dialogue that makes more sense, a collaboration between AI and human screenwriters will still likely result in better and more creative or compelling dialogue than if AI was writing entirely alone due to the limited styles of speech or languages in the training data the AI may not be exposed to.

Overall, Benjamin and AI in general does exhibit some forms of creativity and an ability to write moderately acceptable screenplays that adhere to most of the common story or narrative principles and contain a few components of the Hero's journey model. As AI and Machine Learning technology continues to advance and improve, AI will likely get more creative and better at writing things such as well-rounded characters and more compelling dialogue which it was not as good at, when Benjamin's films were released but has already as of now shown significant improvement.

The state of the art in AI technology is constantly evolving and improving and AI in the future will probably be able to write fully fletched film screenplays and produce other creative works, however there is a greater likelihood that the best of works will come from a result of AI collaborating with human creators. One example of a technology that demonstrates the potential for AI to collaborate with humans in creative endeavours is ChatGPT, a natural language processing model developed by OpenAI. ChatGPT is capable of generating human-like text in real time and has been used to generate all kinds of written content, including entire articles, research papers, and even screenplays (Pavlik, 2023).

OpenAI is also working on other projects that showcase the potential for AI to assist and augment human creativity, such as DALL·E, a deep learning model that can generate original images from textual descriptions (Marcus, Davis and Aaronson, 2022).

The current state of the art in AI collaborative tools is also rapidly advancing, with many new technologies being developed and refined to assist human beings in a variety of tasks. One such tool that has gained popularity in recent years is Co-Pilot, an open-source AI-powered code completion tool developed by GitHub. Co-Pilot uses machine learning to predict and suggest code completions based on the context of the code being written, providing assistance and saving time for developers (Nguyen and Nadi, 2022). In addition to creative endeavors, I have personally used Co-Pilot in my software development work and found it to be a useful and efficient tool making it hard to imagine ever working without it.

As mentioned briefly above, since the release of the films used in the case study analysis of this research, machine learning algorithms, which enable computers to learn and improve automatically with experience and data, have become increasingly sophisticated and are being applied to a wide range of tasks. One example of a current large-scale language model is GPT-3 (short for "Generative Pre-trained Transformer 3"), developed by OpenAI. GPT-3 is a natural language processing model that is capable of generating human-like text and has been used for tasks such as language translation, summarization, and question-answering (Brown et al., 2020). Another example is BERT (short for "Bidirectional Encoder Representations from Transformers"), developed by Google, which is a natural language processing model that has been used for tasks such as language translation and language understanding (Devlin et al., 2019).

In addition to language processing models like GPT-3 and BERT, there are also many other AI technologies being developed and refined to assist human beings in a variety of tasks. For example, deep learning models like convolutional neural networks (CNNs) and long short-term memory (LSTM) networks are being used for tasks such as image and video recognition, natural language processing, and even medical diagnosis (LeCun et al., 2015). As AI technology continues to advance, there will likely be increasing debate and discussion around the ethical implications of these developments. Some have raised concerns about the potential negative consequences of AI, such as job displacement and the potential for AI to be used for malicious purposes (Bostrom, 2014). It is important that these concerns are addressed and that appropriate measures are taken to ensure that AI is used ethically and responsibly.

In conclusion, while AI is capable of producing creative work in the form of film screenplays, there is still room for improvement in terms of character development, plot design, creative dialogue, and increased adherence to the hero's journey. However, AI will likely become increasingly capable of exhibiting greater creativity in the future. It is important that we continue to carefully consider the ethical implications of these developments and ensure that AI is used ethically and responsibly. Alan Turing, one of the pioneers of AI, might be surprised by the state of AI today, with certain applications already passing his Turing test which tests a machine's ability to display intelligent behaviour comparable or identical to that of a human (Levesque, 2017). While there may be some job displacement as a result of AI, it is likely that there will also be many new jobs created in fields such as AI development and ethics. It is also crucial to remember that AI, just like many computer or digital programs before it, is a tool that can assist and augment human creativity and capability, rather than completely replacing it.

Implications for Future Research

Building upon the conclusions drawn from this study, there are several intriguing possibilities and avenues for future research. One prominent direction is the exploration and fine-tuning of large language models, similar to GPT-3 or BERT, to enhance their capabilities in screenplay writing. The ultimate goal would be to develop an AI model that can generate coherent, engaging, and humour-filled scripts from a single prompt, seamlessly integrating narrative theories, such as the hero's journey, and adhering to industry-standard guidelines for screenplay evaluation.

In light of the findings from this research, which highlighted the AI's limitations in character development and dialogue writing, future research could focus on improving these specific areas. This could be achieved by training the AI models on diverse datasets encompassing a range of emotions, character archetypes, and dialogue styles. The aim would be to enable the AI to create well-rounded, relatable characters and dynamic, compelling dialogues that resonate with audiences.

The question of whether AI can be genuinely creative remains a topic of debate and will continue to be so for the foreseeable future. Creativity is often rooted in human experiences and emotions, elements that are distinctly absent in AI. While AI can mimic creative processes and generate content that appears creative, the authenticity and depth inherent in human creativity remain unmatched. This discrepancy between AI-generated content and human-created content is a critical consideration in the context of screenplay writing, an industry that relies heavily on unique, emotive, and authentic storytelling.

The recent Writers Guild of America strike, which transpired from May to September 2023, is a testament to the growing apprehensions surrounding the integration of AI in the creative industry. One of the focal points of the strike was the limitation of AI in the writing process. This demand

highlights the tension between technological advancements and the preservation of human creativity within the industry.

However, rapid advancements in AI technology necessitate further investigation into the practical applications and potential benefits of AI in the creative industries. For instance, the successful integration of AI in screenplay writing could revolutionise the film industry, offering new opportunities for collaboration between human screenwriters and AI. This collaborative approach could combine the best of both worlds – the creativity, intuition, and emotional intelligence of humans with the analytical, data-driven capabilities of AI.

Drawing from the theoretical framework and narratology explored in this thesis, it is evident that the hero's journey can serve as a foundational structure for AI-generated screenplays. By leveraging the 90-point guideline for evaluating screenplays, AI models can be trained to understand the key elements that contribute to a successful screenplay. This will enable the AI to generate content that adheres to the principles of good storytelling while also incorporating unique and innovative elements.

In my experience of collaborating with AI tools such as ChatGPT to write technical screenplays for Python and/ programming classes, I have seen the potential benefits that AI can bring to the screenwriting process. The ability of AI to generate coherent scripts that are both technically accurate and engaging demonstrates its potential as a valuable tool for writers. However, there is still room for improvement, particularly in the model's capacity to encapsulate the essence of humour and emotional depth that is often integral to a compelling screenplay.

Considering the rich cultural and creative heritage of South Africa, there is a unique opportunity to explore the intersection of AI and indigenous storytelling traditions. The development of AI models that are attuned to the nuances of local languages, cultural contexts, and storytelling styles could open up new possibilities for preserving and promoting indigenous stories and narratives.

Lastly, as we step into a future where AI plays an increasingly prominent role in creative processes, it is crucial to foster a culture of innovation and collaboration. Drawing inspiration from the likes of OpenAI and DeepMind, there is a need for more AI labs and research centers in South Africa, dedicated to advancing the field of AI and exploring its applications in various domains, including creativity and the arts as well as using AI to solve some of the country's most pressing challenges.

In conclusion, the implications of this research are far-reaching, opening up a world of possibilities for future research and practical applications of AI in the realm of screenplay writing and beyond. As we venture into this exciting new frontier, it is essential to embrace the opportunities and challenges that come with it, continually pushing the boundaries of what is possible and striving for a future where AI and human creativity coexist and complement each other in harmony.

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Appendix A

90-point checklist for writing or evaluating screenplays.

4 **Genre, subgenre and target audience (2)**

4.5 In which genre(s) and subgenre(s) does it fall?
4.6 Who is the target audience (nationality, ethnicity, gender, age)?

5 **Structure (8)**

5.5 Is the opening and title effective?
5.6 Is the hero effectively introduced and established?
5.7 Is the antagonistic force(s) effectively introduced and established?
5.8 Are the character's goals effectively introduced and established?
5.9 Does the first act end with questions that draw viewers into the second act?
5.10 Does the obstacles/crises/conflict increase during the second act?
5.11 Are all plots effectively integrated?
5.12 Does it have a classical dramatic structure / an effective hero's journey?

6 **Plot (20)**

6.5 Is the story based on a well-known literary work/film/person/news event or popular national/international fear/myth/nostalgia?
6.6 Is there an effective primary plot on which the story stays focused?
6.7 Does the story contain secondary/tertiary/subplots?
6.8 Is there effective story tempo (forward movement)?
6.9 Does the story follow a pattern of cause and effect for all plots?
6.10 Is effective story preparation done (e.g. exposition/foreshadowing/ plants)?
6.11 Is there a substantial threat/risk to the protagonist in the core of the story?
6.12 Does the hero have a disadvantage in the battle?
6.13 Are the primary main characters pro-active? E.g. do they:
6.13.1 Engage in the struggle?
6.13.2 Have to make difficult decisions?
6.13.3 Make plans to reach their goals?
6.14 Do obstacles force the hero: to change/change course/try harder?
6.15 Does the story contain effective symbolism?
6.16 Does the story contain an effective theme/message?
6.17 Is it predictable what situations will develop/if the hero will reach his goals/how the resolution will take place?
6.18 Are there special physical or psychological preparations for the climax?
6.19 Does the resolution of the climax flow naturally out of the plot or is it contrived/a Deus ex Machina?
6.20 Is the hero directly & pro-actively involved in the resolution during the climax?
6.21 Does the climax stretch the hero's abilities?
6.22 Are the story promises made at the beginning, fulfilled at the end?

7 **Characters (24)**

7.5 Whose story is it?
7.6 Are characters introduced during character revealing circumstances and activities?
7.7 Is there a clear opponent/shadow?
7.8 Which of the following masks are worn by characters in the story:

a) Hero(ine)
b) Opponent/shadow
c) Love object
d) Reflection/sidekick
e) Threshold guardian
f) Mentor
g) Shapeshifter
h) Trickster
i) Herald
j) Balance character

7.9 Which type of hero is used:

a) Dramatic;
b) Passive;
c) Anti;
d) Willing;
e) Unwilling;
f) Comic;
g) Lonely;
h) Group oriented;
i) Ironic;
j) Tragic;
k) Catalytic?

7.10 Would the target audience also

7.10.1 Be attracted to the love object?
7.10.2 Find the opponent/shadow threatening?

7.11 Are the characters

7.11.1 Original/fascinating/memorable?
7.11.2 Suitable for the target audience/story?

7.12 Are there too few or to many characters?
7.13 Do the characters differ sufficiently from each other?
7.14 Do the hero and opponent have strong motivations to reach their goals?
7.15 Do the story apply any of the following identification techniques to relevant characters:

7.15.1 Needs/psychological scars/motivations;
7.15.2 Goals;
7.15.3 Special skills;
7.15.4 Weaknesses/flaws;

7.15.5 Positive personality traits;
7.15.6 Appearance;
7.15.7 Circumstances;
7.15.8 Actions and behaviour;
7.15.9 Nationality/ethnicity/gender/age.

7.16 Does the character contain elements that will put the target audience off?
7.17 Does viewers identify strongly with the hero?
7.18 Does character development occur and does it follow an effective hero's journey?
7.19 Is the character development linked to the theme?

8 **Emotion (10)**

8.5 What is the primary emotion that you / the film tries to elicit in the viewers?
8.6 What is the secondary emotion that you / the film tries to elicit in the viewers?
8.7 Is emotion generated through story meaning or through melodrama, superfluous dialogue, unfunctional violence/sex/spectacle?
8.8 How wide is the range of emotions that characters (individually and as a whole) display?
8.9 How effective is the conflict and confrontation?
8.10 Are there complications/revelations/discoveries/twists/reversals/surprises?
8.11 Is there an effective pattern of emotional level/polarity changes?
8.12 Does the plot contain transitional sequences that reveal emotion (complex cause and effect sequences)?
8.13 Does the viewer's emotion reach a peak at the climax?
8.14 Does the end contain an element of justice?

9 **Dialogue (5)**

9.5 Does each character have distinct dialogue (vocabulary, grammar, duration, etc.)?
9.6 Is dialogue obviously and unnaturally used for exposition/aimed at viewers?
9.7 Are there too much/little dialogue?
9.8 Does the dialogue flow naturally, e.g. dialogue hooks, silence, nods.
9.9 Does it contain unfunctional clichés, slang, crude language, dialects and bad grammar?

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Appendix B

***Sunspring* final screenplay written entirely by AI.**

INT. SHIP

We see H pull a book from a shelf, flip through it while speaking, and then put it back.

H
In a future with mass unemployment, young people are forced to sell blood. That's the first thing I can do.

H2
You should see the boys and shut up. I was the one who was going to be a hundred years old.

H
I saw him again. The way you were sent to me... that was a big honest idea. I am not a bright light.

C
Well, I have to go to the skull. I don't know.

He picks up a light screen and fights the security force of the particles of a transmission on his face.

H
(continuing)
What do you mean?

C
(smiles)
I don't know anything about any of this.

H
(to Hauk, taking his eyes from his mouth)
Then what?

H2
There's no answer.

C
(frowning)
We're going to see the money.

H
(reading)
"All right, you can't tell
me that."

Steps back. Coffey is still going through.

C
I was coming to that thing
because you were so pretty.

H
I don't know. I don't know
what you're talking about.

C
That's right.

H
So what are you doing?

H2
I don't want to be honest with you.

He looks at him for a moment, then smiles at him.

H
You don't have to be a doctor.

H2
I am not sure. I don't know what
you're talking about.

H
I want to see you too.

H2
What do you mean?

H
I'm sorry, but I'm sure you
wouldn't even touch me.

H2
I don't know what you're
talking about.

H
The principle is completely

constructed for the same time.

H2
(smiling)
It was all about you to be true.

H
You didn't even see the movie
with the rest of the base.

H2
I don't know.

H
I don't care.

H2
I know that it's a consequence. Whatever you want to know about the presence of the story, I'm a little bit of a boy on the floor.

H
I don't know. I just have to ask you to explain to me what you say.

H2
What do you mean?

H
Because I don't know what you're talking about.

H2
That was all the time.

H
I know that.

H2
I don't know.

H
(angry)
It would be a good time. I think I could have been my life.

He starts to shake.

H (CONT'D)
It may never be forgiven, but that is just too bad. I have to leave, but I'm not free of the world.

C

Yes. Perhaps I should take it from here. I'm not going to do something.

H

You can't afford to take this anywhere. It's not a dream. But I've got a good time to stay there.

C

Well, I think you can still be back on the table.

H

Mmm. It's a damn thing scared to say. Nothing is going to be a thing but I was the one that got on this rock with a child and then I left the other two.

He is standing in the stars and sitting on the floor. He takes a seat on the counter and pulls the camera over to his back. He stares at it. He is on the phone. He cuts the shotgun from the edge of the room and puts it in his mouth. He sees a black hole in the floor leading to the man on the roof.

He comes up behind him to protect him. He is still standing next to him.

He looks through the door and the door closes. He looks at the bag from his backpack, and starts to cry.

T

Well, there's the situation with me and the light on the ship. The guy was trying to stop me. He was like a baby and he was gone. I was worried about him. But even if he would have done it all. He couldn't come any more. I didn't mean to be a virgin. I mean, he was weak. And I thought I'd change my mind. He was crazy to take it out. It was a long time ago. He was a little late. I was going to be a moment. I just wanted to tell you that I was much better than he did. I had to stop him and I couldn't even tell. I didn't want to hurt him. I'm sorry. I know I don't like him. I can go home and be so bad and I love him. So I can get him all the way over here and find the square and go to the game with him and she won't show up. Then I'll check it out. But I'm

going to see him when he gets to me. He looks at me and he throws me out of his eyes. Then he said he'd go to bed with me.